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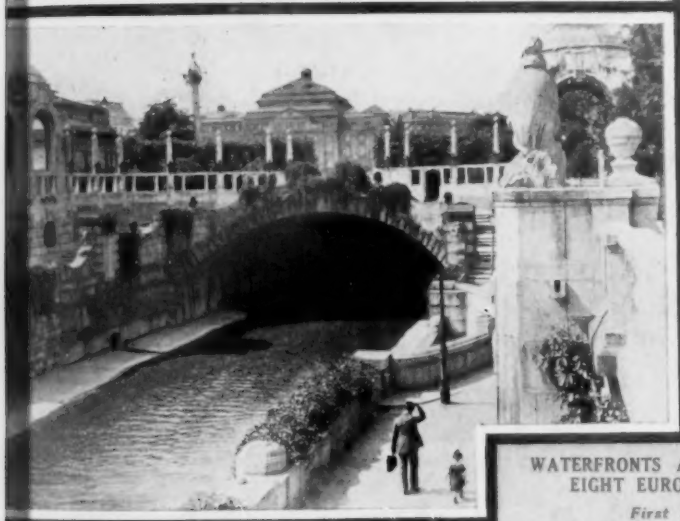
The American City



WATERFRONTS AND BRIDGES OF EIGHT EUROPEAN CITIES

First Column

Nuremberg, Dresden, Vienna, Copenhagen

Second Column

Budapest, Paris, Prague, Munich

43 TEXAS Municipalities

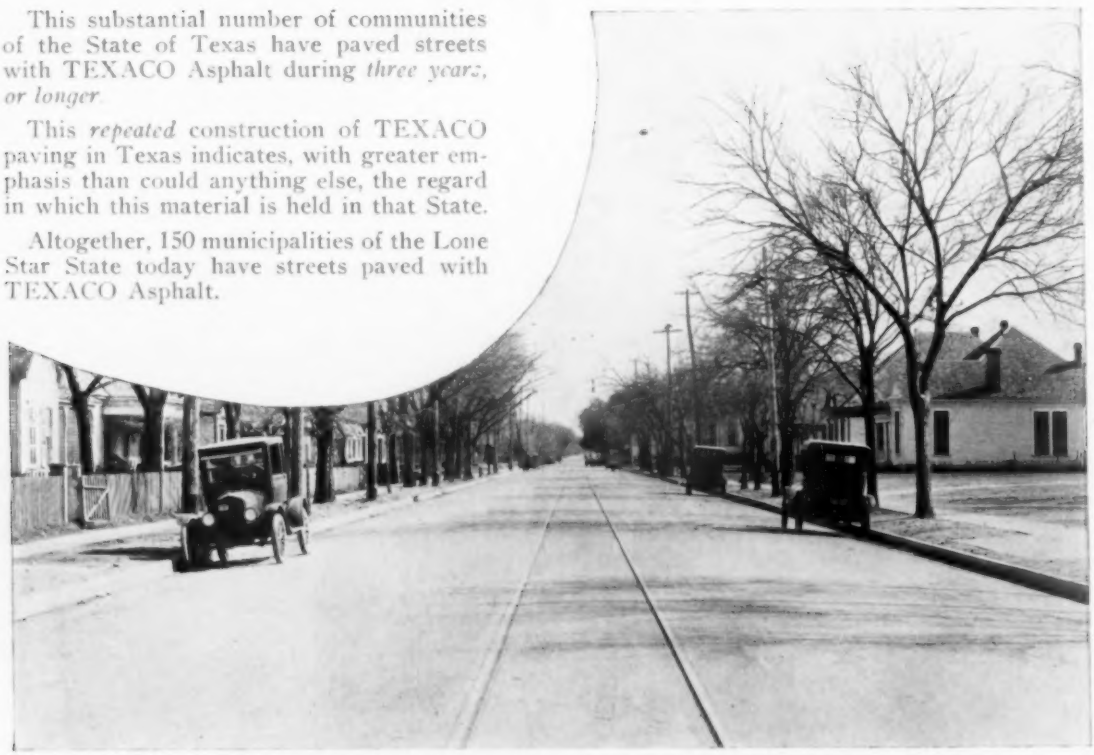
repeatedly

have paved with TEXACO

This substantial number of communities of the State of Texas have paved streets with TEXACO Asphalt during *three years or longer*.

This *repeated* construction of TEXACO paving in Texas indicates, with greater emphasis than could anything else, the regard in which this material is held in that State.

Altogether, 150 municipalities of the Lone Star State today have streets paved with TEXACO Asphalt.



South Eighth Street, Waco, Texas. Paved with TEXACO Asphalt in 1924

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Houston
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THE TEXAS COMPANY, U. S. A.

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Editor

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Secretary and
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H. M. OLMSTED
Associate Editor

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Associate Editor

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443 Fourth Avenue, New York

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See page preceding back cover

The offices of THE AMERICAN CITY are headquarters for information on equipment for municipal and county works. If you want catalogs, prices or names of manufacturers, write or wire us.

Annual subscription to any part of the world, $4.00; single copies, 50 cents; back numbers available.

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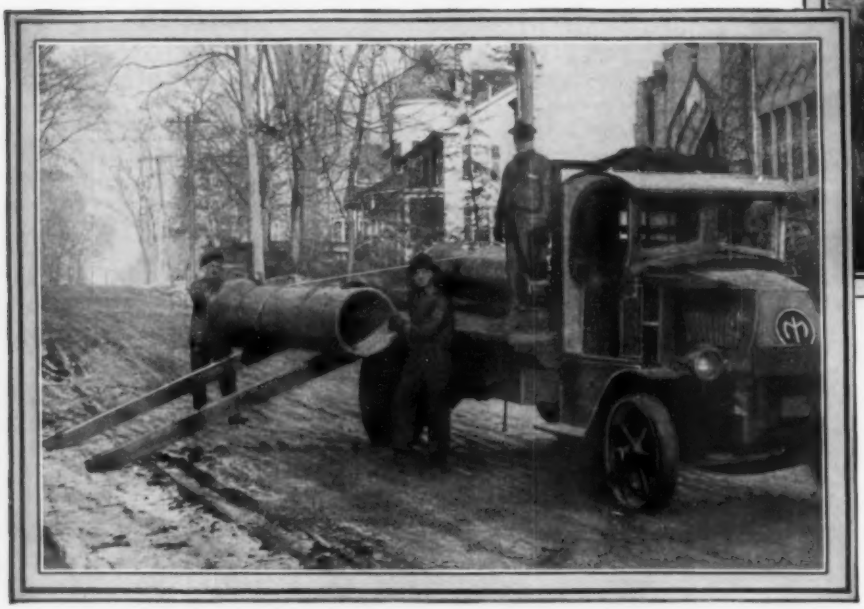
Reducing FIRST costs as well as *last* costs with CAST IRON PIPE



(above)
An inexpensive crane for placing pipe in position

(at the left)
Unloading 24" cast iron pipe using skids

Much helpful data for the engineer and contractor is contained in the U. S. Cast Iron Pipe Hand book. May we send your copy now?

FIRST cost is usually the last cost with cast iron pipe... And proper handling methods will not only insure a lasting job, but also materially reduce the first cost of installation.

The illustration above shows the simple equipment necessary for handling efficiently medium-sized cast iron pipe. The use of the inexpensive crane illustrated speeds up the work, reduces labor cost and helps to make a better finished job.

Practical experience indicates that the use of labor-saving devices may save as much as 40% of the cost of laying mains with hand labor alone. Skillful handling and good equipment on the job always pay.

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Kansas City: 13th & Locust Sts.
Minneapolis: 6th Street & Hennepin Avenue

Yes—we should like you to mention THE AMERICAN CITY.

Items and Abstracts for MAYORS AND CITY MANAGERS

Final Text of Model Municipal Traffic Ordinance Nearly Completed

AT a meeting of the Committee on Municipal Traffic Ordinances and Regulations, of the National Conference on Street and Highway Safety, held in Washington, D. C., July 5 to 7, careful consideration was given to numerous comments and suggestions which had been received by the Committee as a result of the country-wide distribution of the tentative draft of the Model Municipal Traffic Ordinance.* The three-day consideration and discussion resulted in the adoption of numerous changes, some of them being refinements in phraseology and others embodying rather important improvements in the text of the ordinance.

In its revised form the ordinance was unanimously adopted by the Committee, and it is expected that the complete document, with supporting arguments, will be available in pamphlet form before the end of August.

An urgent demand for the final document has been reported from a large number of communities which are now about to revise their traffic regulations. Because of the importance of the changes adopted by the Committee, it is recommended that the actual adoption of new traffic ordinances be postponed until the final text is obtainable. Application for copies should be made to the National Conference on Street and Highway Safety, Department of Commerce, Washington, D. C.

Radio to Keep Citizens in Closer Touch with Mayor's Office in Baltimore

THE conviction that it is the right of citizens to be completely informed on all matters of municipal administration caused Mayor W. F. Broening, of Baltimore, recently to have his office fitted up as a broadcasting station.

Mayor Broening, the Baltimore *Municipal Journal* reports, believes that in making the innovation not only will he be able to keep the citizens well informed on all public matters, but he may also be able to receive constructive criticism and advice.

"He proposes that, if possible, the radio will be used at meetings of the Board of Estimates and Board of Awards. In this manner, the public will know exactly what is going on, what the Boards are doing towards the progress of the city.

"Discussing the matter, Mayor Broening said: 'Many persons have the idea that Board meetings are secret and that the various city administrations do not care to take the public into their confidence. I want to dissipate this idea. I want the people to feel that they are part and parcel of this administration, and I really believe that the best way to mold a closer relationship between the Mayor, his office family, and citizens is the radio program.'

"At various times during the year other officials of the city government will be asked to tell the stories of their departments' work. Incidentally, when prominent officials come to Baltimore they may be able to speak a word to the public without leaving the office of the Mayor. Delegations of citizens who call to see the Mayor on various matters will find that the installation of the radio will be of material benefit to them. While their protest is being received verbally by the Mayor, it will be broadcast so that the entire citizenry will know first-hand what it is all about. Of course, the Mayor's answer, too, will be heard by the listeners-in."

*See THE AMERICAN CITY for May, 1928, pages 111-117.

$43,680,000 in Improvement Bonds Voted by Allegheny County, Pa., to Be Expended During the Next Five Years

ONE of the most thorough and comprehensive county improvement plans yet to be outlined—a plan involving the expenditure during the next five years of $43,680,000—came before the people of Allegheny County, Pa., at a special election on June 26, and was adopted by a large majority vote on each of the seven questions involved.

Many of the needs of the modern community are provided for under these seven headings, which had been selected by the Board of County Commissioners after numerous public hearings, from a list of proposed improvements totaling $100,000,000, and according to statements of the Peoples Bond Issue Association, the requirements of every city, borough, township, and rural community of the county were carefully considered before the questions were finally formulated for the voters.

Roads headed the list, being adjudged of importance to every taxpayer in the county. Under this head, the construction of new highways, reconstruction and widening work, elimination of grade crossings and dangerous curves, were approved. The amount voted was $6,550,000.

Boulevards constituted question 2. Provision for four important and necessary links in the great highway system of the county, which provide at the same time scenically beautiful driveways, was made as follows: Saw Mill River Boulevard, Allegheny River Boulevard, Ohio River Boulevard, and Moss Side Boulevard, to cost $10,930,000.

County Parks.—Allegheny, the richest county in the United States, now owns only about one-third of the recreational land per capita required by modern standards. North and South Park, developments which are proposed to remedy the situation, will cost $1,500,000.

Bridge Improvements.—This appropriation involves the construction, reconstruction, or improvement of four major bridges and 29 minor bridges at a total cost of $14,650,000.

County Office Building.—Present county administration buildings have for some time been entirely inadequate. The proposed six-story modern building will solve the problem. The cost will be $2,550,000.

Town Hall.—A peoples' auditorium to serve the whole county has been discussed for some time, and actively agitated for by certain groups of progressive citizens. The people are supporting the project, which is to go forward at a cost of $6,000,000.

Aviation Field.—This was considered one of the most important questions on the ballot, need for a suitable airport being already imperative. The cost is set at $1,500,000.

This total of $43,680,000 will be financed over a term of five years, at an annual average cost to the taxpayer of 7/10 of a mill, or 70 cents per $1,000 valuation, and will mean, to quote the above-named Association, "realization of a group of improvements of an extent unsurpassed in the history of any community in the world."

Need for More Effective Regulation of Street Openings and Excavations

DOES your municipality effectively regulate the making of openings and excavations in streets and the restoration of the surface and pavement when such openings are made?

American municipalities are losing hundreds of thousands of dollars annually by indiscriminately permitting excavations in streets, particularly those whose surfaces are paved. They are also greatly adding to the expense of repairing pavements by not insisting that those who make cuts in street surfaces properly restore the surface or pavement.

Those municipalities which have solved this problem require persons to obtain a permit, give a bond and make a cash deposit before they can cut or excavate, and thereafter to reimburse the municipality, if necessary.

Several municipalities prohibit any excavation or opening within a period of three years after the paving or repaving of a street, except in a real emergency, which is defined in detail.

Many municipalities require those who make openings to carry out detailed specifications when they are refilling and restoring. This work is also carefully supervised.

All municipalities should regulate this activity by a detailed ordinance and rigidly enforce it. By so doing, they will protect pavements, reduce claims for damages and decrease the repair cost, and thereby plug up one of the big leaks in municipal administration.

—From a recent bulletin of the New York State Bureau of Municipal Information.

USE IS PROOF

And Here Are the Users

Springfield, Mass.	4	Patchogue, N. Y.	1	Jersey City, N. J.	12	Montclair, N. J.	1
Boston "	3	Hempstead "	1	Newark "	11	Summit "	1
Holyoke "	1	Staten Id. "	8	Passaic "	2	Caldwell "	1
Pittsfield "	1	Larchmont "	2	Paterson "	2	Philadelphia, Pa.	2
Winchester, Conn.	1	Tarrytown "	1	Rutherford "	1	Norristown "	1
New Haven "	1	Yonkers "	1	Kearney "	1	Scranton "	1
Waterbury "	2	Cohoes "	1	New Brunswick "	1	Hazelton "	1
Hartford "	3	Schenectady "	2	Morristown "	1	Grand Rapids, Mich.	2
Providence, R. I.	1	Syracuse "	1	Ridgefield Park "	1	Detroit "	1
New York, N. Y.	50	Buffalo "	3	Englewood "	1	Appleton, Wis.	1
						Racine "	1

REMEMBER—

N. P. NELSON IRON WORKS, Inc.
Passaic, N. J.

Nelson—of Passaic

for High Speed Snow Removal

Items and Abstracts for ENGINEERING AND HIGHWAY DEPARTMENTS

Federal Specifications Available for Municipal Use

SO many inquiries have been received by the Editors of THE AMERICAN CITY for copies of Federal specifications, that this item has been prepared for the information of officials. Circular No. 319 of the U. S. Bureau of Standards, Washington, D. C., is an alphabetical list and a numerical list of the United States Government Master Specifications as prepared by the Federal Specifications Board. This circular is complete to January 1, 1928.

In 1921 the Federal Specifications Board was established by the Bureau of the Budget for the purpose of coordination and economy in the procurement of materials and services used by the Government, and the specifications were prepared in the various branches to avoid duplication of effort and the better utilization of the resources of industry. To this board was assigned the duty of comparing and adopting standard specifications for materials and services and of bringing the specifications into harmony with the best commercial practice wherever conditions permit, bearing in mind the desirability of broadening the field of supply. The Board is not a part of the Department of Commerce, but merely maintains its offices at the Bureau of Standards.

Circular 319 of the Bureau of Standards in the alphabetical listing contains one column giving the number of the Federal Specifications Board specification and in the second column another number if there is also a Bureau of Standards circular on the same subject. Specifications bearing only a Federal Specifications Board number are in mimeograph form and can be obtained upon request from the Federal Specifications Board, care of the U. S. Bureau of Standards, Washington, D. C. Specifications bearing Bureau of Standards circular numbers or other Bureau publication numbers in addition to the Federal Specifications Board number are in printed form and must be purchased direct from the Superintendent of Documents at the prices indicated in the titles. In requesting specifications from the Superintendent of Documents, the Bureau publication number must be stated. Purchase orders should not be sent to the Bureau of Standards or Federal Specifications Board. The request should be addressed, accompanied by cash or money order (stamps not accepted) to the Superintendent of Documents, Government Printing Office, Washington, D. C. The price of each printed specification is 5 cents per copy unless otherwise noted in Circular 319 of the Bureau of Standards.

Seven Thousand Gallons of Paint for Indiana Bridges

BIDS for 7,000 gallons of paint, representing a year's supply for the maintenance of the bridge division of the State Highway Department of Indiana for painting both new and old steel bridges and all road signs as well as center lines on pavements, have been asked. The estimated cost is about $12,000.

On all bridge work, whether new or old, three coats of paint are used, the first being red lead because of its rust-resisting qualities. On new work this coat is placed on the material while it is being fabricated in the bridge shop, while the field coats of brown and black paint are applied after the structures are erected. These colors of paint are of different material in order to secure waterproof and weatherproof qualities. The colors also facilitate inspection, as it would be very difficult to determine whether a second coat of the same color as the previous one is properly applied. White paint is used on all hand railings and end posts to increase the safety of night driving. The background of all road signs of a precautionary nature is painted yellow. All route markers, directional, information and restriction signs have a white background, and a glossy black stencil paint is used for lettering on all types of signs.

Staunton Municipal Stone Quarry

THE production of crushed stone at the municipal quarry of the city of Staunton, Va., increased to 6,741 cubic yards in 1927, as compared to 6,457 cubic yards in 1926. Workers in the quarry were paid on a yardage basis instead of by the hour, and the labor cost for producing the crushed stone was thereby reduced. On account of major repairs and rebuilding the crusher, the cost of which was charged to operating expense, the total cost per cubic yard of stone produced was $1.24, an increase over the production cost for 1926 of 14 cents per cubic yard. These figures include a 10 per cent interest and depreciation charge on the plant investment at $5,227.

Concrete Paving in Eldorado, Kans.

A CONTRACT let October 4, 1927, in Eldorado, according to a report furnished by F. E. Schide, City Engineer, to the League of Kansas Municipalities, covered 3,458.91 square yards of 7-inch concrete paving with metal center strip, expansion joints every 50 feet, and expansion joints along each gutter. A 1:3½ mix was used, with 10 per cent gravel sand. Reinforcing bars were placed along each gutter as well as along each side of the center strip along the expansion joints. The cost of this concrete paving was $2.26 per square yard. The 1,446.8 cubic yards of grading, which averaged 15 inches deep in clay, cost 50 cents per cubic yard. The 2,224.8 linear feet of 6 x 24-inch combined curb and gutter cost 69 cents per foot. Day labor was paid $3.20 per day, and the cost of sand delivered per ton f. o. b. cars at Eldorado was $1.50. Cement cost $2.59 per barrel delivered, and the total contract price was $10,460.33. The contractor was King & Kennedy, of Eldorado.

Maintenance Cost of Unpaved Highways

ACCORDING to C. M. Babcock, State Highway Commissioner of Minnesota, the maintenance of unpaved trunk highways in Minnesota cost from $523 to $2,187 per mile in 1927. On every road where graveling was done, a "deferred maintenance" charge must be considered in figuring the cost of gravel roads. There is always more or less gravel worn away, blown away or thrown off the road by speeding automobiles. In ordinary years enough regraveling is done by the maintenance forces to offset this loss, but in 1927 the regraveling done during the summer did not replace half of the gravel lost during the long period of wet weather and muddy roads in the spring in Minnesota.

The Highway Department of Minnesota furnished the following figures on the expenditures per mile of unpaved road in 1927:

Traffic, 150 to 200 cars per day	$ 523.25
Traffic, 201 to 425 cars per day	554.87
Traffic, 426 to 625 cars per day	580.89
Traffic, 626 to 875 cars per day	623.40
Traffic, 876 to 1,250 cars per day	717.87
Traffic, 1,251 to 1,750 cars per day	1,490.24
Traffic, 1,751 to 2,250 cars per day	2,187.18

The costs per mile on the lighter traffic routes were higher than in former years, due mostly to the cost of snow removal, which is just as high as, and sometimes higher than, where traffic is heavy. On the routes carrying more than 1,750 cars per day, the costs were a little less than in former years, because many of these routes have been oiled and tarred and maintenance costs are somewhat less on bituminous treated roads than on untreated gravel roads.

Maintenance of the paved roads which carried an average of more than 2,000 cars per day cost $351.89 per mile in 1927. This was a little higher than in previous years and higher than the allotment for 1928. Snowfall heavier than normal made the cost of snow removal higher. A large proportion of the pavements were new, and heavy rains increased the shoulder repair item. After pavements are a couple of years old, and the shoulders are compacted and grass grown, expenses for shoulder maintenance decreases.

Even though the maintenance of paved roads was higher than in the average year, it was $171 per mile less than the maintenance of gravel roads carrying only one-tenth as much traffic.

Of Interest to Engineers

The Municipal Index for 1928 has many sections of vital interest to engineers in all municipal departments—streets, water, sewer, traffic, and fire.

TRUSCON STEEL CO CURB BARS

These specially rolled steel sections with their thick protecting faces are placed in the curb forms before concrete is poured and so become an integral part of the construction. They give to the curb a wear-proof, shockproof nose that is permanent assurance against cracking and chipping. Furnished in standard lengths of 8 feet, 10 feet and 12 feet and supplied bent to radius for corners.

The Complete Line of Truscon Products *for* Better Roads and Pavements

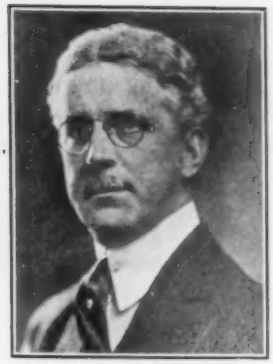
WELDED STEEL FABRIC *for* Permanence and Economy.
DOWEL CONTRACTION JOINTS *for* Eliminating Cracks.
STEEL ROAD FORMS *for* Accurate Construction.
RIB BARS *for* Supplementary Reinforcing.
CURB BARS *for* Protecting Curbs.

Our 184 page illustrated Hand Book "Modern Road Construction" free to Engineers and Contractors.

TRUSCON STEEL COMPANY, YOUNGSTOWN, OHIO

JACOB L. BAUER
County Engineer, Union County, Elizabeth
(Appointed 1898)

WILLIAM C. CATTELL
County Engineer, Gloucester County, Woodbury
(Appointed 1908)



ALEXANDER H. NELSON
County Engineer, Atlantic County, Atlantic City
(Appointed 1913)

HARVEY SNOOK
County Engineer, Sussex County, Newton
(Appointed 1913)

WHO'S WHO AMONG COUNTY ENGINEERS

Installment No. 2—Portraits of County Engineers in Twelve Counties of New Jersey. For portraits of County Engineers in Minnesota, see May, 1928, issue.

HOWARD B. KEASBEY
County Engineer, Salem County, Salem
(Appointed 1914)

HARRY F. HARRIS
County Engineer, Mercer County, Trenton
(Appointed 1917)

WINFIELD M. HOPKINS
County Engineer, Morris County, Morristown
(Appointed 1918)

JOHN M. ABBOTT
County Engineer, Ocean County, Toms River
(Appointed 1918)

WILLIAM A. STICKEL
County Engineer, Essex County, Newark
(Appointed 1922)

OSCAR SMITH, JR.
County Engineer, Somerset County, Somerville
(Appointed 1926)

W. FRANKLIN BUCHANAN
County Engineer, Middlesex County, New Brunswick
(Appointed 1927)

HENRY BREVOORT SMITH
County Engineer, Burlington County, Mount Holly
(Appointed 1928)

Making A BIG IMPROVEMENT with a small expenditure

	Without Elev. Tank	With Elev. Tank	Margin in Favor of Elevated Tank Installation
Maximum pressure	55 lb.	44 lb.	11 lb.
Minimum pressure	25 lb.	35 lb.	10 lb.
Variation in pressure	120%	26%	94%
Maximum pumpage rate (Hourly)	11,021,304 G. P. D.	10,661,736 G. P. D.	359,568 G. P. D.
Minimum pumpage rate (Hourly)	3,971,592 G. P. D.	4,832,376 G. P. D.	860,784 G. P. D.
Variation in pumping rate	182%	120%	62%
Cost to provide adequate pressure for peak loads	$763,340	$317,975	$445,365

THE Municipal Water Department of Springfield, Illinois, has installed a 1,000,000-gallon Horton elevated tank which has resulted in a very substantial improvement in water pressure. At the same time, it has materially reduced the variation in pumping rate.

This city has operated on direct pressure for many years, relying entirely on the continuous operation of the pumps. Engineers estimated that to enlarge the plant facilities so as to meet peak demands with proper pressure without elevated storage would cost approximately $763,340.

One million-gallon Horton elevated tank erected for Springfield, Illinois

It was found that equally good results could be accomplished with an elevated storage tank. In some respects this system was superior to direct pumping because storage is maintained in the district where it is needed. The cost of the system which was actually installed was $317,975 of which the tank itself is only a fraction. The remainder is for additional trunk lines. These are not completely installed as yet, but the results shown above indicate the magnitude of the improvement which has been effected.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2127 Old Colony Bldg.
New York..3108 Hudson Ter. Bldg.
Cleveland....2236 Union Trust Bldg.
Dallas.....3306 Magnolia Bldg.
Atlanta.....1014 Healey Bldg.
San Francisco.....1033 Rialto Bldg.

HORTON TANKS

Items and Abstracts on WATER AND SEWERAGE

Water Department Operation

THE annual report of the City Manager of Pontiac, Mich., for 1927 has an interesting description of the operation of the Department of Water Supply, giving to the taxpayer an idea of the details which must be looked out for to insure an abundant supply of pure and wholesome water:

"The average consumer, who is accustimed to an abundance of cool, wholesome water under satisfactory pressure at his tap every hour of every day in the year, probably has little idea of the amount of routine work to be done in order to provide this service. The main pumping-station, as well as the outlying motor-driven station, must be constantly maintained in condition to give continuous, dependable service. The distribution system must be properly maintained and extended to meet the steadily increasing demand. This includes water-mains, customers' services, meters, hydrants and drinking-fountains scattered about the city. An office is maintained in the City Hall for the collection of water bills. The city also maintains a live-wire unit in the form of a thoroughly modern filtration plant which was constructed a few years ago to meet any emergency which might occur in the well-water system. A variety of activities is thus involved in the production and proper distribution of water to patrons.

"Many new services have been installed upon application of prospective customers. The ordinary dwelling is served by a pipe ¾-inch in diameter. There were 781 such services installed during 1927. In addition, there were 82 special services constructed, ranging from ¾-inch to 8 inches in diameter, and two special 10-inch connections were provided for fire protection at the Yellow Coach and Fisher Body Corporation plants. In line with the set policy of completely metering the city, 749 of the ⅝-inch house meters and all special services were metered. In addition, a special service of changing meters in residences is constantly maintained; 522 changes in meter settings have been made in 1927. It is worthy of note that over $250,000 was collected last year from the sale of metered water."

Capital Investment of the Springfield Water-Works

THE aggregate capital cost of the plant, property and equipment of the municipal water-works utility of Springfield, Mass., as of November 30, 1927, according to the 54th Annual Report of the Water Commissioners, amounted to $7,835,400, of which $424,900 represented construction costs of uncompleted developments of the Little River supply system still in progress. The amount of the city's equity in the water-works utility, that is, earnings invested in plant, etc., stands in the ledger at $5,178,500.

The total bonded debt on account of the municipal water-works has been reduced by the payment from current revenues of $122,000 for bonds maturing the past year. Additional water bonds have been issued to the amount of $1,000,000 at 4 per cent and $500,000 at 3½ per cent, making a net addition of $1,378,000 to the total bonded debt in 1927.

Regulating Underground Structures

IN Pamphlet No. 830 issued by the Bureau of Municipal Research, Philadelphia, Pa., the question of regulating underground traffic covering subsurface pipes, cables, etc., is discussed in an interesting manner. The services delivered to consumers in Philadelphia through structures laid underground are many, and the space available for them in the streets is limited. This same difficulty applies to most cities. Unless these underground structures are installed in an orderly way, they interfere with each other and with other uses of the streets. Official and unofficial means are being used in many places to promote order, convenience and economy in the installation of subsurface structures.

A striking example of the complexity which underground services may attain is furnished by the intersection of 10th and Chestnut Streets, Philadelphia. The plan on file in the office of the Board of Highway Supervisors in the City Hall shows the underground situation. In a space 26 x 26 feet between the curb lines there appears a network of pipes, conduits and tubes. Nearest the north side of the intersection are the tubes of a telegraph company. Then toward the south come a gas-service main, another gas-main, a water-main and an electric conduit. Next, the plan shows a large egg-shaped sewer, another water pipe, a second electric conduit, a third gas pipe and a street-railway power conduit. In order from west to east there are, first, the pneumatic mail tubes, not now in use, then a city electric conduit for police and fire boxes, the conduit of a telephone company, a water-main, a larger high-pressure fire service main, and a large sewer. These are followed by an electric conduit, another electric conduit, an abandoned gas-main, a street-railway power conduit, and another telephone conduit. This section, however, does not show every possible structure. In other streets there are also steam mains, vaults under footways, tunnels, and of course the subways.

Since a permit must be obtained from the Bureau of Highways for each opening made in a city street, the number of permits issued in a year shows the size of the task presented by the regulation of subsurface structures. From the records of the Bureau, it appears that in 1927 there were issued to public service corporations 14,107 permits for street openings, to city bureaus 3,855 permits, and to plumbers 10,435 permits, a total of 28,397. The total number of permits has been increasing each year.

Don't Stint When Building Sewage Filters

DOMESTIC sewage is composed of approximately 99.95 per cent water and 0.05 per cent suspended matter by weight. About 40 per cent of the suspended matter, or only 0.02 per cent of the sewage, is organic matter. It is this 0.02 per cent that causes all the trouble from odors. To oxidize this, filters or elaborate aerating devices are built. An article in the July issue, by C. Kelsey Mathews, was devoted to the essential features of sand filters, contact beds and sprinkling filters, with a plea that a stinting of money for sewage filter construction is like cutting off one's nose to spite one's face. It is taking action in the wrong place.

Municipal Uses of Water in Springfield, Mass.

THE following tabulation is of interest, as it shows the metered and estimated unmetered uses of filtered water from the Little River supply system of the city of Springfield, Mass., by the various municipal departments of the city at the prescribed rates and values. The amounts and quantities are shown for mean year periods. The unmetered quantities in gallons are estimated from amounts on a basis of 6 2-3 cents per thousand gallons or equivalent to 5 cents per 100 cubic feet:

The sum of $85,324.76 is a portion of the water-works accrued earnings for 1927 and as such was duly entered in the accounts of the Water Registrar, but the total amount has to be annually charged off as uncollectable because payment of this amount is prohibited by city ordinance.

UNMETERED USES OF WATER IN SPRINGFIELD, MASS.

Classification	Amounts	Gallons	Memo.
Schools	$8,178.05	122,202,500	All metered
Public buildings (not schools)	3,304.95	49,192,000	All metered
Public parks	3,544.95	53,174,200	All metered
Public playgrounds	377.61	5,664,200	All metered
Building purposes (streets and engineer'g depart.)	336.75	5,051,300	Unmetered
Sewer department (flushing)	3,606.08	54,091,200	Unmetered
Snow removal (via sewers)	2,684.74	40,271,100	Metered
Street washing and sprinkling	2,681.63	40,224,400	Unmetered
Drinking purposes (for animals)	60.00	897,700	Unmetered
Total of above	$24,774.76	370,788,600	
Fire-hydrant service			60,550.00
		{ not reducible } to quantities {	At $25 per hydrant
Total municipal use	$85,324.76		

CHLORINATION SAVED $125,000

Vol. 100 ENGINEERING NEWS-RECORD No. 26

Other Papers on Chlorination

Algae Control at Kansas City, Kan., L. B. Mangun, Chemist in Charge of Water Purification, Kansas City, Kan. —Chlorination three times a week of the influent to a 15-m.g. storage reservoir sufficient to give residual chlorine in the entire reservoir within ten hours gave such satisfactory results during the summer of 1927 that a proposed outlay of $125,000 to cover the reservoir is now deemed unnecessary.

And Eliminated ALGAE in the WATER SUPPLY

It is well known that Chlorine destroys and prevents algae—those objectionable taste and odor producing plants which grow in such profusion in open reservoirs in the summer, and which multiply so quickly in well waters when exposed to the sunlight. But it is seldom that a more striking illustration of its value has been found than at Kansas City, Kansas.

There chlorine was such a successful algaecide that it eliminated the necessity of spending $125,000 to cover a reservoir.

And chlorine sterilizes the water as it eliminates trouble from algae growths!

Here—as in all other branches of chlorination—the trained personnel of Wallace & Tiernan can offer many valuable suggestions.

W & T VACUUM SOLUTION FEED CHLORINATOR TYPE MSV

The vacuum principle of control is exclusive with W & T Chlorinators. The operation is completely visible. Chlorine comes in contact only with silver, glass and rubber. The first Vacuum Chlorinator was shipped in 1921. It is still operating and so are all of the other two thousand shipped since then. Long life is characteristic of W & T equipment.

"The only safe water is a sterilized water"

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Manufacturers of Chlorine Control Apparatus

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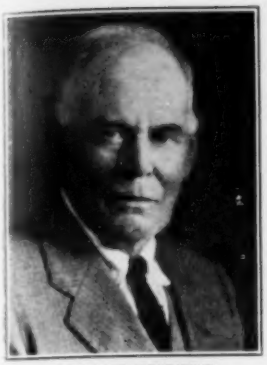
WALLACE & TIERNAN, LTD., TORONTO, CANADA WALLACE & TIERNAN, LTD., LONDON, ENGLAND

SA 15

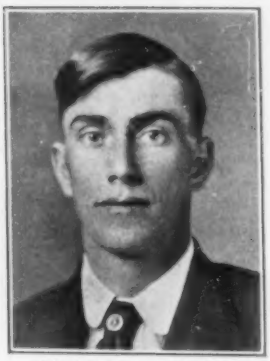
ALSO SEE OUR ADVERTISEMENT ON PAGE 20



JOSEPH SEIBERT
Supt., Water Works, St. Cloud, Minn.
(Appointed 1904)

HENRY ROBERTS
Supt., Water and Light, Brainerd, Minn.
(Appointed 1914)

J. A. JENSEN
Supt., Water Works, Minneapolis, Minn.
(Appointed 1914)



ARTHUR W. WRIGHT
Supt., Water Dept., Little Falls, Minn.
(Appointed 1924)

HENRY MAGNUS
Sec., Board of Municipal Works, Winona, Minn.
(Appointed 1921)

WHO'S WHO IN WATER SUPPLY

Installment No. 8—For Previous Installments, See Issues from January to July, 1928.

CLYDE R. MAY
Supt., Water Dept., St. Paul, Minn.
(Appointed 1927)

HANS V. PEDERSEN
Gen. Mgr., Marshalltown Water Works, Marshalltown, Iowa
(Appointed 1926)

JOHN W. PRAY
Supt., Water Dept., Fort Dodge, Iowa
(Appointed 1909)

C. L. EHRHART
Supt., Water Works, Council Bluffs, Iowa
(Appointed 1927)

E. H. CROFOOT
Mgr., City Water Dept., Mason City, Iowa
(Appointed 1921)

CHARLES C. WEST
Gen. Mgr., Sayre Water Co., Sayre, Pa.
(Appointed 1921)

EDGAR P. KABLE
Gen. Mgr., York Water Co., York, Pa.
(Appointed 1898)

C. J. SWEENEY
Supt., Public Works, Stoneham, Mass.
(Appointed 1916)

CHARLES E. CONKLIN
Supt., Water Works, Chicago Heights, Ill.
(Appointed 1923)

Better . . . Safer Playgrounds!

WHOLESOME fun—with variety—and with complete safety! These three essentials of playground equipment are found in EverWear Playground Apparatus.

EverWear has been the standard for 20 years; used in leading schools the country over, Sturdy and durable—making it far more economical. You select from 161 items—all of them good.

Let us help you plan your playgrounds to take care of the largest number of children. We maintain a special planning service without obligation to you. Our experience will mean the utmost of use from every item you select.

EverWear Junior

APPARATUS FOR THE HOME

Smaller sizes; lower prices; yet the same high quality. There are 28 items in this line, including swings, slides, see-saws, merry-go-rounds, ocean waves, giant strides, merry-wave-strides, combination outfits and kindergarten outfits.

Send for Catalogs:

Catalog No. 20 tells you all about the standard EverWear Playground Apparatus. Catalog No. 20-A tells of the Ever Wear Junior Playground Apparatus for the Home. Ask for the one you want.

EverWear Water Apparatus is illustrated and described in Catalog No. 20

THE EVERWEAR MANUFACTURING COMPANY, **Springfield, Ohio**

EverWear

PLAYGROUND APPARATUS

American Civic Association to Visit Great Smokies

THE Great Smoky Mountains of North Carolina and Tennessee have been chosen as the setting of the Second Traveling Annual Meeting of the American Civic Association, with the particular purpose of giving those who are interested in maintaining National Park standards opportunity to see this magnificent and distinctive region. Here hundreds of sparkling streams unite in turbulent cascades flowing over rocky ravines under foliage almost tropical in its profusion. Azalias, rhododendrons, and laurels bloom there showily in season. The paths are bordered with lacy ferns, galax, calacanthus, and scores of plants known only to the gardens of the North, if at all. Towering a mile above the foothills are the peaks of Mount LeConte and Clingman's Dome, surrounded by other majestic mountains.

Four days will be spent in Gatlinburg, Tenn., six miles from the top of Mount Le Conte, which is 6,600 feet high. Motor trips, walking trips, and horseback rides will be planned into the interior of the park, with a stiff mountain climb to the peak of Le Conte for the more athletic members of the party. On the Asheville side it is planned to visit Bryson City, the home of Horace Kephart, the Cherokee Indian Reservation, Mount Pisgah, Mount Mitchell, and Linville Gorge. A meeting has been planned with the mountaineers and their families, and a local civic league will be organized.

The dates are October 8-13, 1928. For complete information as to railroad rates, motor routes, hotel accommodations, details of program, etc., address the American Civic Association, Miss Harlean James, Executive Secretary, Union Trust Building, Washington, D. C.

Keeping Museums Dust-Free

LAURENCE VAIL COLEMAN explains the broadening of museum activities in the service of outdoor recreation (see page 108). Elsewhere in the magazine appears an account of a quite different educational and recreational service now being conducted by the Metropolitan Museum of New York City, which is re-creating the past with all its romantic appearance and its wealth of art treasure through moving pictures staged with free use of museum treasures as scenery and "props." (page 117). In his new book, "Community Problems" (The Century Co.), Arthur E. Wood contributes another account of how the "spirit of heaviness," "the warehouse idea," is beginning to pass from the more progressive museums. Among examples, he cites the life-long accomplishments of John Cotton Dana, of Newark, in the creation of a museum that functions as "a workshop and assistant to all educational activities in the city." During one year, recently, nearly 2,000 exhibits monthly were loaned to Newark schools by this institution.

Articles of Special Interest

to park and playground departments will be found on pages 109, 112, 116, and 142.

Items and Abstracts for PARK AND PLAYGROUND DEPARTMENTS

And Nothing Else Would Pay Such Dividends

PHILADELPHIA'S children have a total of a million hours of free time on their hands every year. The city's Playgrounds Association believes that "on the proper use of this vast amount of playtime depends a large share of the children's future worth to themselves and their city," and acknowledges a live sense of responsibility in helping to invest the huge, human reserve so that it will bear a maximum of interest in "better health, better morals and better citizenship." As one measure of engaging greater public support for ever-growing play programs, the Playgrounds Association has recently issued an attractive booklet, "How About These 1,000,000 Hours?" telling about the splendid "things to do" provided last year, and the many still unmet needs. The comparative status of recreation is graphically presented in the illustrations herewith reproduced from the booklet.

Buffalo's Public Golf Courses

THE city of Buffalo, N. Y., has three public golf courses, two of which are said to be among the most splendid municipally owned courses in the country. One of these is the Delaware Park course, and the other the Grover Cleveland course. Each has 18 holes. The South Park Course, also municipally owned, has 9 holes, and there is another 9-hole public course now under construction, and to be finished this season, in Cazenova Park.

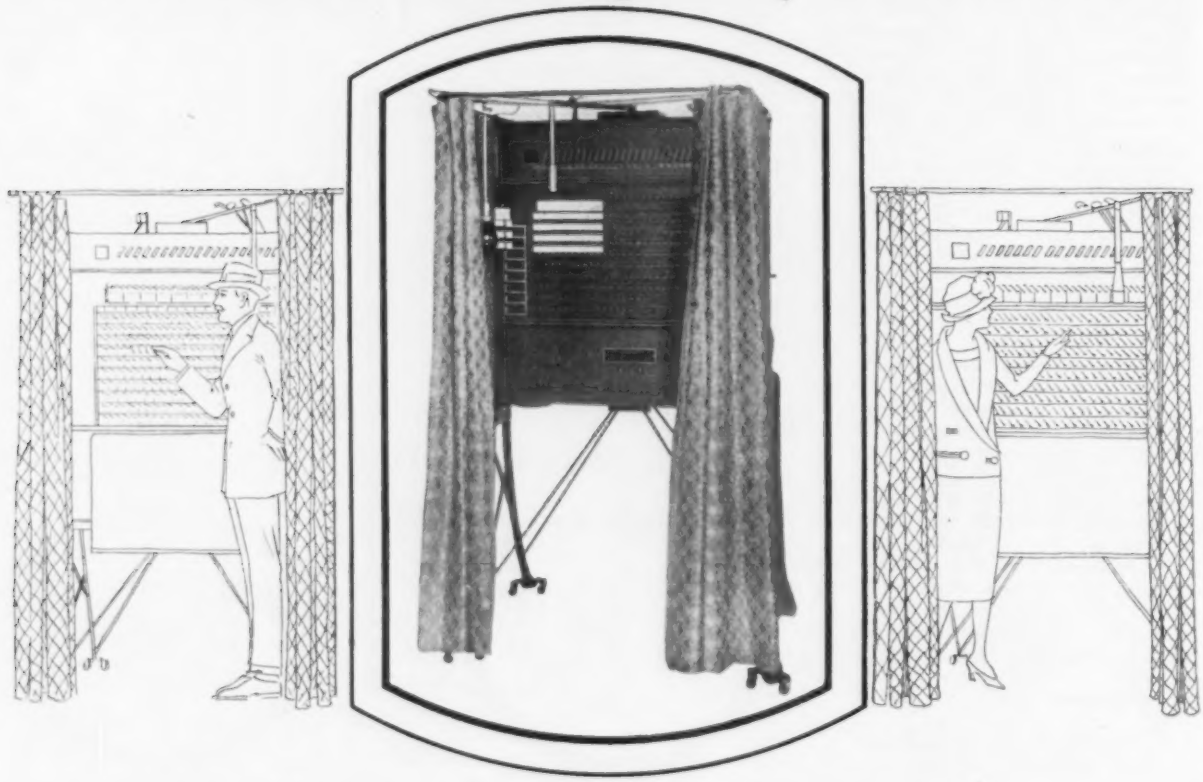
To Inventory Recreation

"THINGS and Their Uses for Enriching Life" is to be the theme of the Recreation Congress at Atlantic City, October 1-6.

These Philadelphia Glasses Need Adjusting

1927
CORRECTIONAL INSTITUTE
COST PER INDIVIDUAL
$187.54
PUBLIC RECREATION
COST PER CAPITA
.33¢
COMPARATIVE AMOUNTS SPENT ON LUXURIES AND PUBLIC RECREATION BY THE PEOPLE OF PHILADELPHIA IN 1927
I GUESS IF I WANT TO KEEP MY HEALTH, I'LL HAVE TO PAY MORE ATTENTION TO PUBLIC RECREATION
WE WONDER IF IT WILL EVER REACH THE CHEWING GUM AMOUNT
MOVIES AND THEATRES
CIGARS
CIGARETTES
TOBACCO
SOFT DRINKS
CANDY
CHEWING GUM
PUBLIC RECREATION
PLAYGROUNDS, SWIMMING-POOLS, PUBLIC BATHS, RECREATION CENTERS, ETC.

VOTING MACHINES
instead of
Crowded Unsightly Booths



FAST disappearing are the old election days—with stuffy polling places and dark, uncomfortable voting booths.

Progressive cities and towns use voting machines, the modern mechanical ballot—speedier, easier to vote, mechanically accurate, saving election costs and rendering spoiled ballots impossible.

From New York to San Francisco, 1,800 communities have installed voting machines.

Write today for illustrated descriptive booklets

Automatic Registering Machine Co., Inc.

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MANUFACTURERS OF

VOTING MACHINES

Holding Land for Profit Not a Business

AN interesting decision relating to the holding of land merely for the purpose of obtaining a speculative return, was handed down recently by Judge Rudkin of the 9th U. S. Circuit Court of Appeals, in the case of the United States of America, plaintiff in error, v. Hotchkiss Redwood Co. The defendant was a California corporation organized in 1919 to take over 20,000 acres of timber land.

Suit was brought by the Government in an attempt to collect taxes from the defendant as a corporation doing business. The decision, which was rendered on April 16, and reported in the *United States Daily* on June 2, said:

"From 1906 to 1924 the defendant in error and its predecessor in interest owned and held this tract of timber land as their only asset. During that period they made no use of the land, added nothing to it, took nothing from it, engaged in only such narrow activities as are incident to the ownership of property, and it would be going very far to say that such corporations are carrying on or doing business within the meaning of a revenue law."

Items and Abstracts for FINANCE AND LEGAL DEPARTMENTS

The *National Real Estate Journal*, commenting upon this case in its issue of June 25, 1928, epitomized the decision in the words:

"The mere holding of land with the purpose of reselling as a whole at a profit, does not constitute the carrying-on of business sufficient to subject the holding corporation to tax as a corporation doing business."

A somewhat double-edged effect may be seen in the result of this suit, for while the corporation escaped payment of the particular tax in question, it did so only through appearing frankly as a purely speculative enterprise, organized only to reap the benefits of enhancement in land values not brought about at all by its own efforts. This official pronouncement upon the nature of such activity, or inactivity, may conceivably have some effect in emphasizing the difficulty of justifying this form of profit-making, from a social viewpoint, and may strengthen the doctrine that the benefit of increased land values should go to reimburse the agencies directly responsible, or should accrue to the community as a whole when an increase is due to general community growth and improvement.

Articles in This Issue

devoted to matters of municipal finance and legislation will be found on pages 94, 105, 107, 113, and 155.

The Municipal Bond Market

By SANDERS SHANKS, JR.
Editor, *The Bond Buyer*

THE break which carried the average basis price of twenty large cities' bonds from 3.87 per cent to 4.11 per cent in the five months ending July 15 represents the most violent movement the municipal bond market has experienced in three years. In 1925, a very similar reaction, commencing in the late spring, resulted in a decline of about the same proportions. After a period of about five months, the market touched bottom and, in November, started on the gradual advance to the peak attained in the early weeks of the current year. A current offering of a new issue of San Francisco bonds to yield 4.20 per cent illustrates what has happened. Five months ago that city's 4 per cent bonds would have been priced at par.

Municipal bonds, like those of the Federal Government, move up or down with the money market. They are, in the truest sense, a medium of investment. There is nothing about them of the speculative nature. When money is easy they are bought up by banks, corporations and all sorts of financial institutions as a sort of secondary reserve. As these buyers compete for bonds, prices are forced up. During such a movement cities find that the keenest demand is for bonds of short maturity, reflecting the preference of the banking institution as against that of the ordinary private investor. When the money situation is reversed, as it has been for the past few months, the banks and other institutional buyers' interest in municipal notes and bonds slackens. As credit conditions tighten, the banks become sellers, rather than buyers, of bonds, first letting go of their short-term holdings, in the sale of which little or no loss is involved and, later, dumping the securities of longer maturity. That this has lately been happening is clearly reflected by the fact that the interest rate for short-term municipal loans has advanced several times as much as that quoted for a long-term loan. In handling a serial loan today, the bond dealer must sell the short-dated bonds on a more attractive yield basis than the "long" bonds.

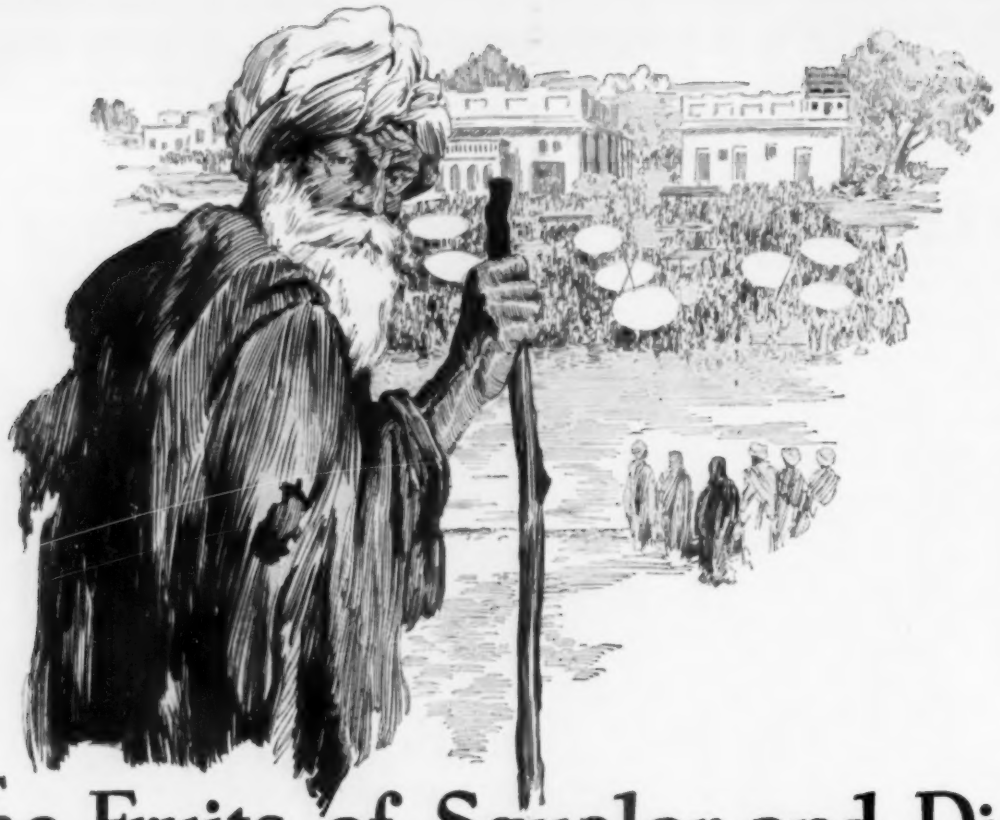
The movement of municipal bond prices during the next six months is a problem many city officials are facing right now. Whether to sell bonds or finance temporarily, or postpone the operation entirely (and, if so, for how long) is a question most bankers would handle with great caution at this writing. The outlook is not at all clear. The stock market and its drain on credit resources is the big "if" in the money market. The business trend is also uncertain. National politics and its effect on both the stock market and business is another factor the weight of which cannot easily be gaged.

Most economists assert that the long trend of interest rates is downward. While it is possible that the bond market may sag even lower during the next few weeks, it is the consensus of opinion that high money rates will eventually bring back a condition of credit ease which will be followed by a return flow of capital into high-grade investments, causing bond prices to work back to approximately the level of a half-year ago.

The city which is not actually in need of capital funds at this time would clearly appear to be doing the unwise thing to float a loan at current rates. When money must be borrowed, a six-months temporary loan would serve the purpose of giving the bond market a chance to overcome abnormal adverse conditions.

The following list of representative issues indicates the present trend of the municipal bond market:

Amount	Issue	Rate (%)	Maturity	Net Yield (%)
$30,000	Exter Tp., Pa., Sch. Dist	4½	2¾-8 Yr. Opt. Avg.	3.41
20,000	Klamath Co., Ore., Keno H. S. Dist	5	5-20 Yr. Opt.	3.81
268,000	Everett, Mass.	4	2 5/6 Yr. Avg.	4.00
30,000	Wayne Co., Ind	4½	5¾ Avg.	4.05
66,500	Abilene, Kans.	4	1-10 Yr. Ser.	4.09
1,000,000	West Virginia	4 & 4½	22¼ Yr. Avg.	4.165
322,000	Elizabeth, N. J	4¼	15½ Yr. Avg.	4.21
200,000	Larchmont, N. Y	4¼	1-20-Yr. Ser.	4.22
250,000	Old Town, Me., Water Dist	4	1-35 Yr. Ser.	4.23
3,200,000	San Francisco, Calif	4½	4-23 Yr. Ser.	4.34
280,000	Fordson, Mich., Sch. Dist	4½	15½ Yr. Avg.	4.40
182,000	Emanuel Co., Ga	4½	16½ Yr. Avg.	4.32
245,000	Grayson Co., Texas	4¾	20 Yr. Avg.	4.53
802,000	Jacksonville, Fla.	5	6 Yr. Avg.	4.63
91,000	Burke Co., N. C	4¾	9 1/3 Yr. Avg.	4.68
35,000	New Bern, N. C.	5	2-37 Yr. Ser.	4.88



The Fruits of Squalor and Dirt

Mother India—mighty under Akbar but now fallen low—cradle of peoples, philosophies, religions, but strangled by the brutish hand of caste and superstition—land of thronging millions, holy pilgrims . . . *and the carrion vulture.*

It is our pride that we are not as they, that our cities and our hamlets never saw the waiting buzzard hovering dark against the sky.

Ours is a land of progress, cleanliness and sanitation!

The modern American city disposes of its garbage and refuse in Sterling Destructors. There the waste consumes itself in fire—and through the intensity of its burning creates no offensive gas. The products of combustion that rise from Sterling Destructor stacks are completely oxidized; hence odorless. They cannot taint the air.

Read the Sterling Destructor booklet that has been prepared for you.

THE C. O. BARTLETT & SNOW CO.
6220 Harvard Ave. Cleveland, Ohio

Bartlett - Snow

Refuse Disposal Plants

Items and Abstracts for CIVIC AND COMMERCIAL ORGANIZATIONS

$500,000 Fund Pledged for a Three-Year Program of Regional Planning

THE Regional Planning Federation of the Philadelphia Tri-State District has completed the raising of a fund which will provide a half-million dollars for a three-year program. The past three years have been spent in preparatory work and the gathering of basic information in preparation for the "Master Plan." The Federation has endeavored to paint a statistical and factual picture of the region, its highways, parks, air fields, water and land transportation facilities, water-supply, sewage disposal and the other data necessary for an understanding of present facilities. Thirty or forty diagrammatic maps have been prepared and a number of reports have been issued.

During this period, the Federation has conducted a widespread educational campaign as to the what and why of regional planning. The organization believes that regional planning to be effective must be something more than a plan, that the program must bring to the region an understanding of its own economic and social unity, its interdependence and the necessity for cooperation in the working out of its problems.

The officers of the Federation feel that these three years of preliminary work have given the district a degree of regional-mindedness, that the officials and civic leaders are coming to recognize that isolated community progress is no longer possible, that real community development can be secured only by regional unity of understanding and action. Nearly 300 public meetings have been held, the newspapers have helped and leaders of the region have already lent their cooperation in carrying through inter-community programs. Trunk highways, parks, bridges and other specific projects which will take their logical place in the final regional plan, have already been secured.

Now, with its enlarged treasury, the Federation is prepared to continue, on an expanded scale, its gathering of basic data and to begin its preparation of the "Master Plan." This plan will be developed not by engineers in a central office alone, but with the cooperation of committees including in their membership, technicians, officials and civic leaders from the various sections of the region.

The Federation is engaged at present in the preparation of two base maps of the entire region of approximately 4,000 square miles. One will consist of a revision of the United States Geological Survey maps, most of which are thirty years or more old, corrected as to important features such as principal highways and streets, town boundaries, subdivision extensions, etc., and enlarged from the standard scale of one mile to a scale of 2,000 feet to the inch. This work is being done for the Federation by the United States Department of Interior on the basis of the corrections supplied by the Federation.

The other base map will consist of an air mosaic of the region on a 1,000 foot scale. This can be reduced to a 2,000-foot scale to correspond to the United States Geological Survey base maps, if such revision is found useful. Both of these maps are in preparation this summer, and it is expected that the fall will see their completion, thus giving to the Philadelphia Regional Plan a more complete base-map equipment than any other regional plan has at present. These maps will be used not only for recording all preliminary data and for the plan itself, but will be available also to public officials for town planning and general public work, and to architects, engineers, public utilities and other citizens for private work.

The Federation is now developing a more extensive sub-regional and district organization, which will be utilized for regional participation in the preparation of the plan and for regional cooperation in securing its actual adoption and ultimate realization.

HOWARD STRONG,
Executive Secretary.

Kansas City Organizations Cooperate in Municipal Government Conference

IT has been several years since Woodrow Wilson said: *"I conceive it to be one of the needs of the hour to restore the processes of common council, and to substitute them for the processes of private arrangement which now determine the policies of cities, states, and nation."* But the need is of this hour as well as that. *"We must learn to meet, we freemen, as our fathers did, somehow, somewhere, for consultation,"* he continued. *"There must be discussion and debate, in which all freely participate."*

The recent Conference on Municipal Government, in Kansas City, exemplified the new impulse to meet this need. It was a meeting "for consultation," and there was *discussion*—if not *debate*. The League of Women Voters of Kansas City took the lead in organizing the conference, in which work they had the cooperation of a splendid group of civic organizations, including the Chamber of Commerce, the American Association of University Women, the Business District League, the Citizens' League, the General Federation of Women's Club, the Men's City Club, the Public Service Institute, the Real Estate Board, Taxpayers' League, Women's Chamber of Commerce, and the Women's City Club.

Many phases of city and county administration were discussed, each being presented first in a paper read by an authority on the particular problem. Chief among the topics considered were "Permanent Registration," the paper on which was presented by Dr. Joseph M. Harris, Department of Political Science, University of Wisconsin; and "Financing the Ten-Year Plan," paper presented by Louis R. Ash, consulting engineer and former City Manager of Wichita, Kans. The city manager plan was presented by Colonel C. O. Sherrill, of Cincinnati. Russell F. Greiner, Vice-President, Law Enforcement Association, presented the matter of law enforcement and crime, and Mrs. Mina Van Winkle, of Washington, D. C., President of the International Association of Policewomen, described the workings of a woman's bureau in the police department. Walter Matscheck, Director, Kansas City Public Service Institute, presented the case for simplification of county government. Discussions following each paper were led by competent authorities.

In sending out announcements of the meeting, the organization said:

"The League of Women Voters understands efficient government to be a representative; responsible, and responsive government; stronger than any political and economic group; capable of rendering with the least waste and at equitable cost, services adapted to the needs of life of all the people.

"The realization of efficient government depends upon the adaptation of statutes, charters, and constitutions to the facts of life; upon the nomination, election, and appointment of responsible officials; *upon the acceptance by citizens of participation in government as a public trust.*"

"The program went off without a hitch according to plans," reports Ray W. Wilson, Secretary of the Civic Department, Chamber of Commerce, of Kansas City, in a letter to THE AMERICAN CITY. "The sessions were reasonably well attended, and received good publicity in the local press; and I have no doubt that the discussions conducted in the conference will result in greater interest in the matters discussed."

A Civic Saturday Night Bath

CLEAN-UP WEEK may be a sort of civic Saturday night bath, but its observance is highly beneficial. The ideal state of a city is one of cleanliness never lapsing from rigid observance. When responsibility rests on so many shoulders, however, enthusiasm for a spotless town, or even a spotless cellar, is sure to lag. And so an annual Clean-up Week is an excellent thing, considered even as a reminder only.

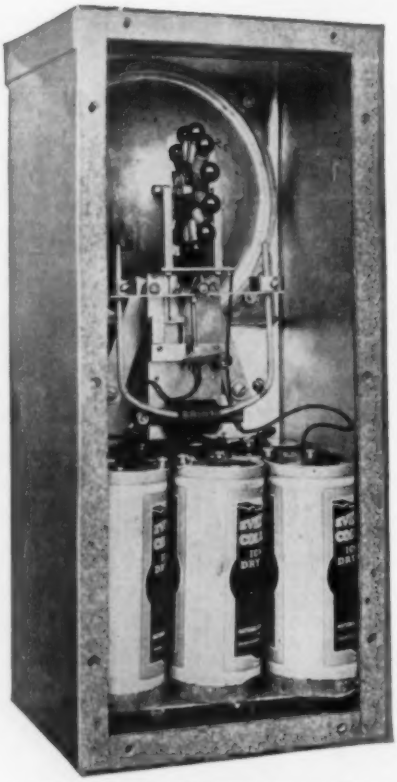
—*Newark Evening News.*

News and Views

of interest and importance to civic and commercial organizations appear on pages 94, 97, 106, 107, 118, 123 and 147 of this issue.

$5.62 for 14 Months!

—AND STILL SHE FLASHES



Flasher Mechanism W&T Dry Battery Flasher showing batteries, flasher mechanism and automatic lamp changer

Fourteen months ago we made a very difficult warning flashing signal installation for the New Jersey State Highway Department on a narrow, very heavily travelled bridge on Route No. 4.

This bridge takes all of the traffic from New York and Northern New Jersey to the Jersey shore resorts. Because of the excessive vibration and numerous accidents that had previously occurred at this point, it was considered the most difficult point in the State at which a flasher could be tested.

The results have exceeded our expectations. The flasher is still flashing, giving its bright warning sixty times a minute—and during this whole period the total upkeep cost was $5.62. The batteries were changed once. Burned out lamps were immediately replaced by the automatic lamp changer.

Less than a cent and a third a day—and not a single accident since its installation!

Write for Technical Publication No. 86

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Manufacturers of Chlorine Control Apparatus

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Also see our advertisement on Page 12

Items and Abstracts for DEPARTMENTS of PUBLIC SAFETY

State Highway Department Urges Cooperation for Control of Glaring Headlights

THE glaring headlight is one of the most fruitful sources of accidents on the public highways of Minnesota, as elsewhere. Minnesota formerly had the same difficulty that many states still have in attempts to control the evil. But under a recently passed law, a state-wide system of headlight testing stations has been established, and a definite test standard determined. With the proper support of local police, sheriffs, automobile clubs, and public-spirited citizens, the State Highway Department believes that blinding headlights can be obviated entirely.

Highway Commissioner C. M. Babcock recently sent out a state-wide plea for cooperation to this end. Law enforcement, he said, is entirely in the hands of peace officers. Such officers must compel all drivers with dazzling lights to have their lamps adjusted, and motor clubs and private citizens must give their backing if the newly established stations are to function adequately. The law does not involve arrest and prosecution except in the cases of seasoned offenders. It merely requires the driver with glaring lights, to go to the nearest testing station and to return with a certificate showing proper light adjustment. Little time and expense are ordinarily involved.

Red Cross "Waterproofing" Programs Help Decrease Accidental Deaths

THERE will soon be one expert swimmer and trained life-saver among each ten bathers everywhere, if plans of the American Red Cross for "Waterproofing Americans" continue to work out as auspiciously as they are working at present. This organization loses no opportunity to spread a knowledge of swimming and rescue methods, furnishing a staff of experts to every community in the country that wants them and in addition providing textbooks, land drills, water games, and pageant material without cost to teachers wanting them.

For the past six years, the Red Cross has been conducting life-saving institutes for the training of camp counselors and the improvement of swimming teachers. These institutes reach from five to six hundred people each season at summer camps; and, in addition, intensive indoor courses for teacher training are conducted all the year in populous cities in every state.

In giving an account of this significant activity, before the Southern Physical Education convention recently, W. E. Longfellow, Assistant National Director of the First Aid and Life-Saving Service, reported that between February, 1914, and February, 1928, 163,076 certified life-savers have been awarded certificates. Of that total, 89,202 are juniors, boys and girls from 12 to 17, while 41,742 are men and 32,132 are women. "The way bathing beaches and swimming pools have multiplied the last ten years has kept us stepping," Mr. Longfellow added, "but we are glad to note that drownings are not increasing. . . . . " There are now in one year only a little over 6,000 deaths from this cause among the toll of 70,000 accidental deaths in the United States. And the effect of this constructive work is further reaching than appears on the surface, for resuscitation by prone pressure,* which is one of the fundamentals of life-saving, is equally effective in cases of suffocation from various causes.

* See THE AMERICAN CITY, July, 1928, page 101.

Law Enforcement Cuts Automobile Accidents in Detroit

A SAVING of 35 lives in the first five months of 1928 as compared with the same period of 1927 is reported from Detroit, as a result of law enforcement, according to a statement by the Street Traffic Committee of the National Automobile Chamber of Commerce, issued July 18.

"Law enforcement is the ultimate move on which all traffic progress depends," said Alvan Macauley, President of the Automobile Chamber, commenting on the report. "Detroit has been active in safety education, in traffic engineering and in traffic research. All this has contributed to the city's improved safety record, but unless there is general support of the law without favoritism, all educational efforts can avail but little."

Detroit for several years has had safety education in schools. The Police Department has also been industrious in enlisting the cooperation of women and children. It has had 1,263 showings of reels of motion pictures, and has held 1,350 meetings, with attendance of approximately 1,000,000 persons. It has sent out 500,000 safety bulletins. In spite of these activities, the accident record, until the first of this year, had been steadily increasing. While it was true that the motor registration of the city had been growing, the city government felt that in view of all the educational work, simplified traffic rules and other efforts that were being made to improve the situation, some result should be more clearly apparent.

Commissioner of Police Rutledge made a special study of the situation which revealed there were thousands of violations of the traffic regulations, many of them minor infractions, but in the aggregate resulting in confusion and disaster.

The Commissioner called a meeting of the police force and issued the order that every infraction of traffic rules should be reported and that summonses were to be given absolutely without favoritism.

He emphasized the fact that this program was to be continuous. The public properly resents a "drive," he held, because those who suffer during such a period feel that they are unjustly being held up as examples because they were unfortunate enough to violate traffic regulations at a time when the police were temporarily active. The Detroit program accordingly was set forth as a long-range project.

Commissioner Rutledge instructed the patrolmen as well as the regular traffic force that it was their duty to enforce the traffic law as much as any other law. Certain patrolmen customarily assigned to walk within a beat were instead placed at corners on the beat, near signal boxes where they could be called when needed on other duty.

There is a hazard in the use of patrolmen suddenly for traffic duty because of their relative unfamiliarity with these ordinances. It is recommended that any city planning to adopt this Detroit method provide the patrolmen with special schooling in the ordinances, in order to avoid making false arrests.

Reports of summonses and accidents are kept by police districts, which enables the Commissioner to keep a check on the efficiency and activity of respective precinct captains.

Traffic Violations Bureau

A feature which has made possible the handling of these cases in volume has been the existence in Detroit of a Violations Bureau where the alleged violator may go and pay his fine for minor infractions without being subjected to delays in court procedure and without clogging the courts with relatively minor cases.

The utility of this Bureau is indicated by the following table of the Detroit traffic cases for 1927:

154,758 cases handled by Violations Bureau
112,902 cases settled at Bureau
14,625 cases sent to court
27,231 cases pending

An analysis of traffic violations in May, 1928, indicates that, with the exception of parking, the most frequent infractions were: proceeding against a signal light; speeding; entering through-streets without stopping; and making prohibited or improper turns. The tabulation of these violations is as follows:

Speeding	1,121
Against signal	1,668
Non-stop through-street	1,086
Parking	2,018
Poor lights	406
Passing stopped street car	279
Obstructing walk and traffic	133
Excessive noise	383
Prohibited and improper turns	978

Articles in This Issue

which are sure to prove interesting to safety officials are "Drafting the Building Code," on page 130, and "Grade Separation at Arterial Highway Intersections," page 137. Other news and views on safety subjects appear on pages 93, 101, and 106.

THE DIAPHONE

A compressed air operated public alarm with a distinctive and penetrating tone. The only public alarm (whistle excepted) that will successfully sound a coded signal.

When you have tried all other public alarm devices and find your need for a penetrating public alarm with a distinctive tone, unfilled, it is time that you installed a *Diaphone*.

The *Diaphone* is the old standby in public alarms. For years it has protected small municipalities throughout the country. It protected the U. S. Army Cantonments during the war and it can still be found protecting U. S. Government property. The *Diaphone* also has a fine service record in an entirely different field, one where the life and property hazard is equally as great as in the fire protection field—the lighthouse service. Along the coasts of this country, on the banks of the St. Lawrence River and on the shores of the Great Lakes, the *Diaphone* as a foghorn, has for years warned ships off the rocks. It was selected by two Governments for this important service because of its penetrating tone and reliability of operation.

The *Diaphone* has a tone that cries "Fire." It cannot be confused with whistles and other noises of the modern community. It is the only public alarm (other than a whistle) that will satisfactorily sound a code signal from a standard street fire alarm box. Furthermore, a storage reservoir with a capacity of 100 blasts, is provided so that an alarm may be sounded on the *Diaphone* even though the electric current be shut off for a period of 24 hours.

Before you install a public alarm investigate the *Diaphone*.

Will operate from

Standard Street Fire Alarm Box

A Bulletin describing the Diaphone more completely will be sent upon request.

The Gamewell Company

Newton Upper Falls, Mass.

"A Box A Block"

Can be operated from

Peerless P.N.I. Transmitter located at fire station or phone exchange

A. H. BAKER
Police Chief, Orlando, Fla.
(Appointed 1926)

SAM B. BOYD
Fire Chief, Knoxville, Tenn.
(Appointed 1900)

J. E. BROWN
Police Chief, Laurel, Miss.
(Appointed 1914)

J. F. DONOVAN
Fire Chief, Meriden, Conn.
(Appointed 1912)

J. V. GRESHAM
Police Chief, Hattiesburg, Miss.
(Appointed 1925)

WHO'S WHO IN PUBLIC SAFETY

A Series of Portraits of Fire and Police Chiefs, Begun in the January, 1928, Issue

HERMAN A. HASKELL
Police Chief, Portland, Maine
(Appointed 1927)

A. H. KOLTONSKI
Fire Chief, Rutland, Vt.
(Appointed 1924)

L. F. McDONALD
Fire Chief, Jackson, Miss.
(Appointed 1917)

J. A. MORTON
Police Chief, Columbus, Miss.
(Appointed 1914 and 1923)

W. F. C. PARTIN
Fire Chief, Meridian, Miss.
(Appointed 1918)

WM. C. SHEPARD
Fire Chief, Pittsfield, Mass.

P. J. THOMAS
Fire Chief, Berlin, N. H.
(Appointed 1926)

W. M. TOOMEY
Fire Chief, Chattanooga, Tenn.
(Appointed 1905)

W. L. TUCKER
Police Chief, Vicksburg, Miss.
(Appointed 1920)

BRITEMARK MONEL METAL TRAFFIC MARKERS

Brooklyn, New York—Fourth and Atlantic Avenues—marked with Britemark Traffic Markers. City officials, traffic bureaus and automobile clubs in the largest cities in the United States and Canada endorse this practical way of pavement marking. They afford a safe as well as permanent way of indicating traffic zones on all types of pavements.

PERMANENT *Safety Lines*
that defy the constant pounding of heavy traffic

ABILITY to withstand the severest type of traffic conditions and their clear visibility regardless of time or weather—these are the two big reasons why Britemark Traffic Markers have been adopted by the leading cities and industrial plants the country over.

Capped with bright Monel Metal* tops, Britemark Traffic Markers are rust-proof and corrosion-resisting. The strong, durable base, made of special heat-treated malleable iron, is provided with a pronged stem which is self-clinching when forced into pavement or floor. These traffic markers afford a permanent method of street and floor marking that is more economical and satisfactory than lines requiring frequent repainting.

Britemark Traffic Markers are available in three sizes—1½″, 2½″ and 3½″ in diameter—suitable for every municipal and industrial need. Your nearest distributor will furnish complete description and prices. He will also cheerfully demonstrate how these markers are used for indicating safety zones, guide lines and caution signals on all kinds of pavements—asphalt, concrete, stone, wood or brick.

Mail the coupon *NOW!*

METAL TRAFFIC MARKER CORPORATION

67 Wall Street, New York, N. Y.

Distributors in all principal cities

*Monel Metal is a technically controlled Nickel-Copper alloy of high nickel content. It has no coating to wear off. It is rust-proof, corrosion-resistant and as strong as steel.

Metal Traffic Marker Corp., 67 Wall St., New York
Please have your nearest distributor send me full information and quotations on your BRITEMARK Traffic Markers.

Name .....

Position .....

Address .....

City ..... *State* .....

AC 8-28

CATALOGS FOR CITY OFFICIALS

THE AMERICAN CITY should always be mentioned when writing for this material which is furnished free.

Keep your files up to date by checking over these items each month and writing for those you need.

SEWER CASTINGS AND CHECK VALVES

City engineers and architects should secure a copy of the new Josam Catalog G, just issued by the Josam Mfg. Co., 4900 Euclid Bldg., Cleveland, Ohio, which contains 72 pages and more than 100 illustrations giving authoritative information on Josam drains, Josam-Marsh grease, plaster and hair interceptors, open seat swing check valves, open seat back water sewer valves, combination closet fittings and bends with cast closed end.

STREET SIGNS

Joslin's street name intersection and traffic signs are especially designed, constructed and finished to meet the most severe conditions of weather and abuse. The construction, combining 99 per cent pure aluminum, DuPont Duco and Molybdenum Toncan iron, is fully described in literature which will be sent on request by the A. D. Joslin Mfg. Co., Municipal Supply Div., 133 Arthur St., Manistee, Mich.

DIESEL ENGINES FOR WATER-WORKS

The Anderson Engine & Foundry Co., Anderson, Ind., will be pleased to send a copy of its illustrated catalog describing Anderson diesel engines for pumping water and showing how one of these engines can save money in your plant.

PIPE CUTTING

A circular describing the Ellis pipe cutter, which is made in two sizes for pipe 4 to 8 inches and 4 to 12 inches in diameter, and which cuts all kinds of pipe right in the trench, may be secured from the Ellis & Ford Mfg. Co., 38 Piquette Ave., Detroit, Mich.

PROPER CONTROL OF TRAFFIC

Complete information regarding illuminated stop signs, reflector signs, see-through signs, plain traffic signs, beacons for overhead pedestal or mast-arm mounting as well as stop-and-go signals, may be secured from the Esseo Mfg. Co., Peoria, Ill.

MAKING FIBER FOR STREET BROOMS

"The Story of Huntsville Hickory" is an interesting little booklet telling the story of the manufacture of this product in a very interesting manner. A copy may be secured on request from the Huntsville Fiber & Veneer Works, Huntsville, Ala.

TRAFFIC SIGNAL CONTROL

The Reynolds Electric Co., 2650 W. Congress St., Chicago, Ill., will be pleased to send to interested officials a copy of its Bulletin 402 describing Reco control apparatus for traffic signal lights, as well as other literature describing the Reco unit flasher and motors.

WEED-KILLER EQUIPMENT

The Chipman Chemical Engineering Co., Inc., Bound Brook, N. J., has just put on the market a new piece of foolproof atomizing apparatus for the application of Atlas non-poisonous weed killer to borough and town streets and gutters, on which it will be pleased to send complete information.

MUNICIPAL BOND SERVICE

Information regarding the municipal bond service of the United States Mortgage & Trust Co., 55 Cedar St., New York, which assures full responsibility for the preparation, execution and delivery of municipal bonds for use by cities, counties, or districts, may be secured on request from this company.

STREET FLUSHERS

The Whitehead & Kales Co., Detroit, Mich., will be pleased to send complete data on the W & K street flusher, which will enable cities to have cleanly flushed streets at exceptionally low cost.

SNOW-PLOWS FOR ALL TRUCKS

Special bulletins describing twenty models of Baker snow-plows for all makes of trucks and tractors, may be secured on request from the Baker Mfg. Co., 503 Stanford Ave., Springfield, Ill.

CABLE FOR LIGHTING AND AIRPORTS

Rome Trenchlay cable, which is especially designed for airport lighting, control cable circuits, industrial yard lighting, isolated beacon circuits, parkway lighting, primary distribution, remote control circuits, secondary services, street-lighting and traffic-control circuits, and which is laid in a trench without additional protection, is described in an interesting new booklet that may be secured from the Rome Wire Co., Rome, N. Y.

ASYMMETRIC LIGHT DISTRIBUTION

Street-lighting officials writing to the Street Lighting Dept., Holophane Co., 342 Madison Ave., New York, may secure a copy of a reprint of an I.E.S. paper, "Asymmetric Light Distribution Requirements for Side-Mounted Street Lighting Units," which sets forth the lighting results that should be aimed at in the development of such units.

GLASS COVERS FOR SLUDGE BEDS

Lord & Burnham Co., Graybar Bldg., New York, will be pleased to send complete information and prices regarding their glass-overs for sludge beds, by means of which more efficient drying is secured because of the higher temperature under the glass and protection from rain and freezing.

FILTER FLINTS

Complete details and information regarding a newly uncovered deposit of filter sands in South Jersey in which the grains are unusually hard, smooth and round, may be secured from George F. Pettinos, 1206 Locust St., Philadelphia, Pa.

ASH, GARBAGE AND REFUSE COLLECTORS

A new ash, garbage and refuse collection truck, known as the Colecto, which provides a nuisance-free and clean way of removing rubbish, is described in literature which may be secured from the Collection Equipment Corp., General Sales Agents for B. Nicoll & Co., 292 Madison Ave., New York.

LEATHER-BOUND MEMO AND METER HANDBOOK

The Pittsburgh Equitable Meter Co., Pittsburgh, Pa., has recently published a leather-bound memorandum book which contains schedules of prices for all its water meters, together with specifications, code words, sizes of meter connections, standard specifications for cast iron and wrought iron pipe, with tables of general dimensions, standard flanges, maps, lists of cities with their populations, tables of weights and measures, and other worth-while engineering data. Copies of these memorandum books may be secured free by writing to the Pittsburgh Equitable Meter Co.

NEW BOOKLET ON PAVEMENT REPAIRS

A most interesting autobiography by A. Chuck-hole under the title "The Life, Adventures and Death of a Pest" has been prepared by the Austin-Western Road Machinery Co., 400 N. Michigan Ave., Chicago, Ill., for free distribution to municipal officials. The book is particularly well written, is interesting and describes in an interesting manner the liabilities of holes in city pavements.

ADJUSTABLE MANHOLE TOPS

Literature covering the complete line of municipal castings for street service made by the S. E. T. Valve Hydrant Co., 50 Church St., New York, including its adjustable manhole top, which permits replacement or readjustment in 20 minutes without digging, will be mailed on request.

SNOW PREVENTION AND REMOVAL

This is the title of a booklet dedicated to highway officials and issued by the Hi-Way Service Corp., Milwaukee, Wis., describing various methods of snow control and removal, as well as giving data on all types of Wausau snow-plows.

MOTORIZED STREET CLEANING

The Elgin Corp., 501 Fifth Ave., New York, has issued an unusual folio of pictures showing the operation of the Elgin pick-up sweeper in detail. Copies of this folio may be secured by municipal officials writing on their official letterheads to the company.

MOTOR MOWERS FOR PARK, SCHOOL OR PRIVATE LAWNS

The Bob-A-Lawn made by the Cushman Motor Works, Lincoln, Nebr., is a light-weight motor mower which makes lawn cutting less tedious. It will cut from three to four acres of lawn a day, using only a small quantity of gasoline. Literature may be secured free on request.

FIFTY YEARS OF ROAD-BUILDING MACHINERY

The C. D. Edwards Mfg. Co., Inc., Albert Lea, Minn., has recently published its fiftieth anniversary catalog, which carries a brief description of the machinery made in the early days of ths company, beginning in 1878, and a complete description and illustrations of its complete line of machinery manufactured today.

NEW METHOD OF CURING CONCRETE

Complete data regarding the Hunt process of curing concrete by spraying the surface with an asphalt emulsion, which increases the strength of the concrete, eliminates all hair checks, enables concrete to be walked on and used sooner, and waterproofs the surface, eliminating frost flaking in cold weather, may be secured on request from the Everlasting Paint & Sales Co., 1110 Board of Trade Bldg., Los Angeles, Calif.

SIX-CYLINDER TRUCKS

Information regarding Graham Brothers trucks, built by the Truck Division of Dodge Brothers, Inc., Detroit, Mich., which are now made with six-cylinder engines and four-wheel brakes on all sizes and types, may be secured on request by interested city officials.

MUNICIPAL POWER NEEDS

A copy of Booklet NY-1, describing Nordberg Uniflow engines and their performance in other municipalities, which will be of interest to city power-plan officials, may be secured on request from the Nordberg Mfg. Co., Milwaukee, Wis.

MUNICIPAL SUPPLIES

The Public Works Equipment Co., Inc., 1776 Broadway, New York, will be pleased to quote prices and send information regarding municipal supplies of every kind, including all kinds of equipment and accessories for cities, towns, villages and public utilities.

CITY SIGN PROBLEMS

The Sign & Signal Div., Lyle Culvert and Road Equipment Co., 171 27th Ave., S.E., Minneapolis, Minn., has recently issued a 32-page well-illustrated booklet which is designed to sum up some of the interesting experiences of city officials with problems of traffic control, parking, operation of vehicles and other matters which concern the most efficient use of signs.

BOULDER BODY FOR TRUCKS

A new truck body, known as the Boulder Body, has been designed by the Wood Hydraulic Hoist & Body Co., Detroit, Mich., with heavy reinforced body cross-members and slanting sides for heavy rock excavation. Complete information regarding this new body may be secured from the company.

If you want keen local competition on your next Public Works Contract, advertise for bids nationally in Engineering News-Record.

Local bidders usually have advantages that should enable them to offer the lowest bids. These advantages will be reflected in their bids if the work is advertised for *national* as well as *local* competition.

The distribution of *Engineering News-Record* is both national *and* local.

Its circulation of over 30,000 weekly includes practically every worth-while contractor or manufacturer in the country who is interested in bidding on public works contracts, either locally or outside his immediate vicinity.

That is why the Official Proposal Columns of *Engineering News-Record* offer exactly the same efficient service to cities, towns, counties, and state and government departments in every section of the United States.

That is why the Official Proposal Columns of *Engineering News-Record* are used by cities, towns, counties, and state and government departments in every section of the United States.

And that is why *you* can get more bids, both local and national, by advertising your contracts in the Official Proposal Columns of *Engineering News-Record.*

Official Proposal Advertising Department

ENGINEERING
NEWS-RECORD

A McGraw-Hill Publication

Tenth Avenue at 36th Street, New York City

Member A. B. C. & A. B. P.

SIMPLE DISC WATER METERS

An illustrated catalog and prices on Niagara iron case and American bronze case water meters in all types and sizes, which have only five moving parts, thus insuring years of constant trouble-free service, may be secured from the Buffalo Meter Co., 2902 Main St., Buffalo, N. Y.

QUICK-DRYING ZONE PAINT

Descriptive literature on Hanline zone paint, which dries in six minutes, leaving a hard, pure white, semi-gloss finish which is oil- and water-proof, will be sent on request by Hanline Bros., Baltimore, Md.

MOTORCYCLES FOR POLICE

Special police literature describing the Harley-Davidson 9-point police service motorcycles may be secured without obligation from the Harley-Davidson Motor Co., Dept. M, Milwaukee, Wis.

ROAD MAINTENANCE

The Barrett Co., 40 Rector St., New York, has just issued a booklet that is designed to show how every type of road and pavement, except earth roads, may be simply, easily and inexpensively repaired and maintained with Tarvia, and gives detailed data for maintenance of each type.

ROTARY PRESSURE MIXERS

The American Fin-Mix Co., Wrigley Bldg., 410 N. Michigan Ave., Chicago, Ill., has issued a folder describing the Finley rotary pressure mixer, which will thoroughly mix from 7,000 to 15,000 pounds of material in one batch.

LARGE GASOLINE ENGINES

The Sterling Engine Co., Dept. C-11, Buffalo, N. Y., has recently developed two new large gasoline engines, one 6-cylinder and one 8-cylinder, known as the Viking II Model, developing 425 and 565 horsepower, respectively, at 1,200 revolutions, for water, electric or standby service. Complete information may be secured from the company.

SEWER CLEANERS AND MACHINES

Booklets of The Turbine Sewer Machine Co., Milwaukee, Wis., describing the turbine sewer cleaner that works by water pressure, will develop 3 horsepower and will clean the most stopped-up sewer, and a free sample of the turbine non-buckling wood sewer rods, will be sent to interested city officials.

STANDARDS FOR VITRIFIED SEWER PIPES

The Eastern Clay Products Association, 906 Colonial Trust Bldg., Philadelphia, Pa., has issued the second edition of its standards of salt glazed vitrified sewer pipe and fittings as well as fire clay flue linings and fittings, wall coping and fittings, which it will be pleased to send to any interested official free on request.

SPRAYERS FOR ALL PURPOSES

The Friend Mfg. Co., Gasport, Niagara County, N. Y., makers of gasoline, hand and traction power spraying machines for all kinds of spray practice in many sizes and styles, as well as high-pressure automobile and motor-truck washing machines, will be pleased to receive inquiries regarding their products.

NEW STREET-LIGHTING LITERATURE

The Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa., has just published two new illustrated catalogs covering its ornamental street-lighting equipment, and overhead street-lighting equipment. These catalogs, 218-A on Overhead Street Lighting, and 218-B on Ornamental Street Lighting, may be secured by any interested city official or civic organization, free on request.

TREE WIRE

Full information regarding Fibrex tree wire, which is a rubber-insulated wire protected by a layer of tape, a serving of tarred jute, non-metallic Fibrex armor and a wear-resisting weatherproof braid, will be sent on request to interested park and street officials by the Simplex Wire and Cable Co., 201 Devonshire St., Boston, Mass.

HOISTS AND BODIES FOR TRUCKS

Heil hoists and bodies, as well as Heil general-purpose dump units for use in collecting rubbish and garbage and for general utility purposes by cities, are described in literature which may be secured from the Heil Co., 1242-60 26th Ave., Milwaukee, Wis.

MATERIAL-HANDLING EQUIPMENT

The Heltzel Steel & Iron Co., Warren, Ohio, will be pleased to send to interested city officials a copy of the new Heltzel catalog of material-handling equipment, describing its road forms, curb forms, sidewalk forms, joint plates, bins, etc.

TAR HEATERS

Pamphlet No. 15 describing the new Honhorst oil-burning heater, as well as other literature describing the Honhorst line of portable and stationary tar heaters in sizes from 25 to 200 gallons, will be sent on request by the Jos. Honhorst Co., 1016 W. 6th St., Cincinnati, Ohio.

FIELD INSPECTION AND TESTS

The Robert W. Hunt Co., engineers, 2200 Insurance Exchange Bldg., Chicago, Ill., will gladly send complete information regarding their system of field superintendence of all kinds of paving with field laboratory control of all asphalt mixers, as well as inspection and tests of all paving and structural materials.

DEPENDABLE WATER-SUPPLIES

City officials interested in dependable water-supplies with low pumping costs should secure a copy of the Air Lift Catalog of the Indiana Air Pump Co., Indianapolis, Ind.

WIRE FOR ALARMS SYSTEMS

The Hazard Insulated Wire Works, Wilkes-Barre, Pa., will gladly send complete information and prices on Hazard wires and cables for traffic, police and fire alarm systems.

TAPPING SLEEVES AND VALVES

Booklet AC issued by the A. P. Smith Mfg. Co., East Orange, N. J., describes the complete line of water-works specialties and supplies, including clamped and bolted tapping sleeves and tapping valves as well as high-pressure valves, hydrants, valve-inserting machines, lead-melting furnaces, pipe-cutting machines, and corporation brass goods, made by this company.

HOISTS FOR SEWER TUNNELING JOBS

Type "NH" single- and double-drum, gasoline and electric hoists, for sewer tunneling and other construction work, are described and illustrated in Technical Data Sheet No. 121 of the Novo Engine Co., 204 Porter St., Lansing, Mich.

INSPECTION OF CREOSOTED POLES

The Pittsburgh Testing Laboratory, Pittsburgh, Pa., has just issued a new booklet, "Inspecting Creosoted Pine Poles and Piles," which gives complete details regarding this company's careful, conscientious and practical inspection of creosoted materials.

PLAYGROUND APPARATUS

Catalog X-10 describing Spalding time-tested apparatus for the playground, as well as booklets covering the Junglegym, the climbing structure for playgrounds, school yards, etc., may be secured on request from A. G. Spalding & Bros., Playground Dept., Chicopee, Mass.

TYPICAL TRAFFIC HAZARDS

The Alumoyd Sign & Signal Co., 255-59 E. 95th St., Chicago, Ill., has just issued a very interesting brochure which presents a graphic portrayal of night and day traffic hazards and their correction, illustrating typical traffic conditions and showing how these conditions can be corrected.

STREET-LIGHTING EQUIPMENT

In a booklet, "Ornamental Street Lighting," the Line Material Co., Walter E. Schuets, South Milwaukee, Wis., shows all the latest designs in ornamental street-lighting equipment, including ornamental brackets, glassware, cast iron and concrete standards and capitals.

CONCRETE PIPE

The Lock Joint Pipe Co., Ampere, N. J., will be pleased to send information regarding its reinforced concrete pipe, its method of manufacture and installation, to city officials interested in concrete pipe for pressure lines, sewers, culverts, subaqueous lines or pumping mains.

DEPENDABILITY IN FIRE-HYDRANTS

A booklet describing Ludlow fire-hydrants, which require little or no attention and cost practically nothing for upkeep, yet are always on the job when needed, will be sent free on request by the Ludlow Valve Mfg. Co., Troy, N. Y.

DIESEL POWER FOR CITIES

The engineers of the McIntosh & Seymour Corp., Auburn, N. Y., will gladly submit facts and figures on McIntosh & Seymour diesel engines, with their dependable operation, high fuel economy and low operating and maintenance costs, for the power requirements of your city.

CLEAN STREETS

A descriptive catalog on the Kinney motor pick-up street sweeper, which affords an up-to-date, sanitary, economical and efficient method of cleaning city streets, may be secured from the Kinney Mfg. Co., Boston.

ADEQUATE WATER-SUPPLY

Layne & Bowler, Inc., Memphis, Tenn., will be glad to receive inquiries regarding Layne well systems, which will insure an adequate water-supply for your city or town to safeguard it against fire and pestilence.

WATER PURIFICATION

Complete information and data regarding International water purification plants may be secured without obligation from the International Filter Co., 333 W. 25th Pl., Chicago, Ill.

ROCK ASPHALT PAVEMENT

Complete information and literature describing Kyrock, and the methods of laying this type of pavement, may be secured on request from the Kentucky Rock Asphalt Co., Inc., Louisville, Ky.

SHINING DOMES OF SAFETY

Britemark traffic markers, which are easily recognized by their bright, shining domes which caution traffic to move safely, are manufactured by the Metal Traffic Marker Corp., 67 Wall St., New York, which will gladly send full information and quotations on request.

NEW METER BOX AND YOKE

An interesting booklet completely describing and illustrating the Mueller water-meter cover and yoke, which has many features of construction and design that save time, labor and money, will be sent on request to interested city officials by the Mueller Co., Decatur, Ill.

DRINKING FOUNTAINS AND HYDRANTS

A complete catalog of drinking fountains and hydrants, including the Murdock outdoor bubble font, which is made of bronze, brass and iron and built especially for outdoor service in parks, playgrounds and schoolyards, may be secured from the Murdock Mfg. & Supply Co., Cincinnati, Ohio.

MARBLE FOR CITY BUILDINGS

The National Association of Marble Dealers, Dept. 11-F, Rockefeller Bldg., Cleveland, Ohio, has issued a well-illustrated booklet, "The Everyday Uses of Marble," which gives interesting data about the beauty and advantages of marble for use in building construction.

ACCURATE WATER METERS

Trident and Lambert water meters, which have many features of interest to municipal water-works officials, are described in literature which may be secured on request from the Neptune Meter Co., 50 East 42nd St., New York.

DEEP-WELL PUMPS

Downie deep-well pumps, which are made in many styles and sizes, single or double stroke, and with any form of drive, direct steam, power belt or direct-geared to motor, are described in literature which may be secured from the Keystone Driller Co., Beaver Falls, Pa.

PARK AND GOLF COURSE MOWERS

A copy of the Special Catalog illustrating and describing the complete line of Pennsylvania mowers for public parks and golf courses made by the Pennsylvania Lawn Mower Works, 1615 N. 23rd St., Philadelphia, Pa., is yours for the asking.

CHEMICALS FOR WATER AND SEWAGE

The Pennsylvania Salt Mfg. Co., Widener Bldg., Philadelphia, Pa., will be pleased to send complete information and prices on liquid chlorine, chloride of lime or sulphate of alumina for water purification or the treatment of sewage.

WATER SURVEYS SAVE MONEY

Information on how your city water department can save money by reducing operating costs and increasing revenues through a Pitometer water-waste survey, will be sent on request by the Pitometer Co., 52 Church St., New York.

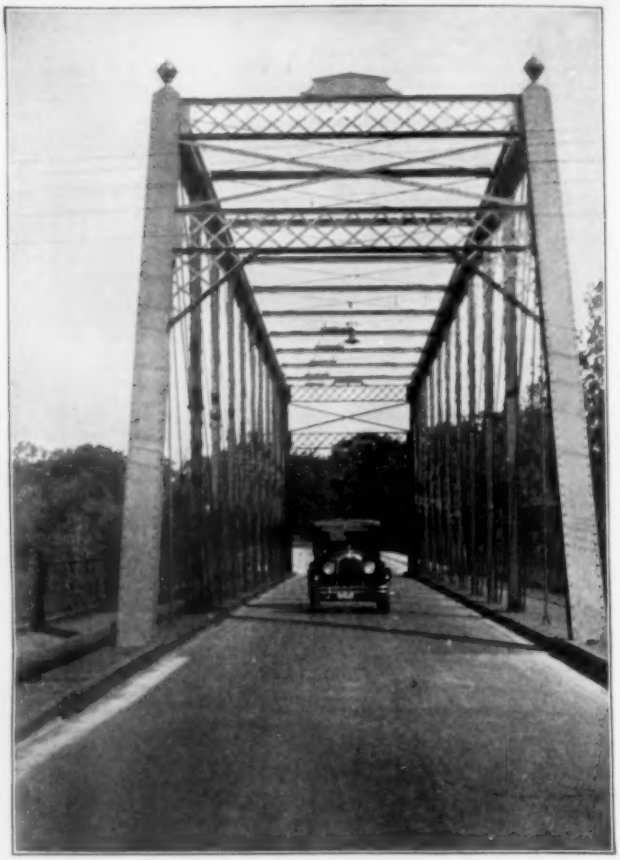
CENTRIFUGAL TURBINE PUMPS

Engineering data and illustrated literature on Pomona centrifugal turbine pumps, in which the bearings are water-lubricated, preventing sand from cutting the bearings and insuring oil-free water, may be secured from the Pomona Mfg. Co., Pomona, Calif.

Carey Elastite

BRIDGE FLOORING

"Knits and heals under traffic"



Wittenberg Avenue Bridge, Springfield, Ohio, protected with Carey Elastite Bridge Flooring nailed over the wooden sub-floor. Notice especially the snug fit at the sides.

As traffic shuttles over it, this resilient bridge flooring *improves!*

At Springfield, Ohio, travel is heavy over the Wittenberg Avenue Bridge. Yet the surface is in better condition now than the day it was laid. That's because it is lastingly protected by Carey Elastite Bridge Flooring, the climate-proof construction improvement which becomes smoother and tougher with time and traffic.

The engineers who built this modern bridge will tell you, too, that it is much more quiet now under heavy loads. For the improved flooring lessens vibration and rattling noises.

Carey Elastite Bridge Flooring is delivered in various lengths, widths and thicknesses. Inexperienced labor can install it easily and rapidly with ordinary tools. Write—ask us to tell you more.

THE PHILIP CAREY COMPANY, *Lockland*, Cincinnati, Ohio

Vol. XXXIX
No. 2

443 Fourth Avenue
New York

The American City

AUGUST
1928

50 Cents
$4 a Year

A Pooling of World Ideas on Making Cities Livable

Some High Lights from the International Housing and Town Planning Congress, Held in Paris the Week of July 2, with More Than a Thousand Registered Delegates Representing Some Forty Different Countries

Housing of the Very Poor

AN excellent summary of what appeared to be the practically unanimous opinion of those who presented papers on the housing of the very poor at the Paris meeting, or who took part in the discussion of this subject, was presented by G. Montagu Harris, of the Ministry of Health, London, at the final session of the Congress. The speaker's conclusions were:

"That the housing of the very poor is but part of the whole question of social reform and that every effort must be made to raise the level of the poorer classes, intellectually and morally, as well as economically; that this will eventually tend to render the question of housing easier, but that, side by side with this general policy, the local authorities must make a serious effort to get rid of the existing slums and, so long as private enterprise is unable to cope with the situation, the state and the municipalities must assist to provide, for those who are not in a position to pay normal rents, houses which, while economical in their form of construction and equipment, shall be such as to give to their inhabitants the possibility of a decent and healthy existence."

Among the formal papers presented at the Congress, the only opposition to economic aid by state or local authorities in the housing of the very poor was that voiced by Lawson Purdy, of New York. Pointing out the beneficial results of zoning laws, sanitary and building codes, and the need for higher standards in such laws and codes, Mr. Purdy's paper* advocated municipal action in slum eradication and in the prevention of bad housing rather than in financial aid to new building enterprises. His concluding suggestion was:

"We can hasten the destruction of some of the old houses by widening streets and creating new parks. By that very process we can bring about changes of condition which will naturally bring about the erection of good houses, bringing in a higher class of population, which, in turn, will lead to the destruction of more houses that are old and unfit for such a neighborhood, changed as it will be by the improvements made. This does not hold out the hope of rebuilding our cities over night, but we can rebuild them over a period of years so that they shall be more wholesome, sanitary, and agreeable places for the homes of the poorest people."

But whatever may be the wisest policy for American cities to pursue, the delegates who listened to the discussions at the Congress or who visited some of the excellent housing developments in European cities, built with the aid of national or local subsidies or loans, could hardly fail to be impressed with the important benefits of such governmental action in raising housing standards, furnishing employment, and providing decent homes for millions of persons who otherwise might have lacked, in a large measure, these benefits. In Vienna alone, for example, 31,542 dwellings have been erected by the municipality during the last nine years, and a further 30,000 are to be built during the next five years. For the poorest families, special attention is being given to providing in connection with the larger buildings such amenities as playgrounds, wading pools, gardens, shelters and day nurseries, reading rooms with collections of children's books, club rooms, free libraries, maternity and tuberculosis clinics, baths and wash-houses with mechanical fittings. As soon as the scarcity of houses has been met, the municipality of Vienna expects to start upon what is perhaps a still more difficult task, that of improving the less healthy dwellings built by private enterprise before the war.

Housing as a Public Utility

THE German report to the Congress showed that during the four years from 1924 to 1927 inclusive, about 1,340,000 dwellings were built with aid from public funds aggregating about one-half of the total cost. England has, since the war, granted housing subsidies to the large amount of £227,500,000 (over a billion dollars) from public funds, in addition to loans.

The grave problems arising from the distressing conditions under which the very poor have been living in many parts of Europe were emphasized in the papers presented at the Paris meeting. The French report pointed out that 18 per cent of the families in that country are still living in single rooms. The Housing Service of the Spanish Ministry of Labor called attention to the fact that, in Madrid:

"The insanitary conditions and the destitution of the tenants contribute to the development in these tenements of every disease, especially of contagious diseases, and to a very high infant mortality. The general mortality there is from 35 to 48 per 1,000, and the tuberculosis mortality is as high as 4.97 per thousand. . . . The overcrowding produced by the small number of rooms per dwelling is made worse by sub-letting, so that the majority of the families of the poor in the large cities are reduced to living in only one room."

Strong pleas were made by some of the speakers that decent housing be put

* Mr. Purdy's point of view is is presented in greater detail in advance excerpts from his paper, published in THE AMERICAN CITY last month, page 138.

MAIN RAILROAD STATION, NUREMBERG

RUE DE RIVOLI AND TUILERIES GARDENS, PARIS

BRANDENBURG GATE, BERLIN

on a par with public education as a service to be provided by the modern state or municipality for its citizens, regardless of their ability to pay the cost involved. On the other hand, the danger was pointed out of so dealing with this matter as practically to subsidize low wages.

Irrespective of the methods used to solve the problem, it is evident, as one of the delegates put it, that the children of the very poor need as much cubic space as any others, and that the very poor family similarly needs proper sleeping, washing and other accommodations. Finally, as pointed out in the general report by Henri Sellier, President of the General Council of the Department of the Seine, there was general agreement that the housing problem must be dealt with by the authorities in the interests not only of the persons badly housed, but also of the communities as a whole, and that not the least important points to be considered are educating the general public in housing matters and inculcating in the less well-behaved tenants a pride in their home and a desire to preserve its amenities.

House Building Costs

THE eighteen reports submitted to the Congress on house building costs were summarized by Dr. Robert Schmidt, Director of the Ruhr Regional Planning Federation, of Essen, Germany. Dr. Schmidt found unanimous agreement in these reports that the cessation of building during the war and the fluctuations in currencies (especially in Europe) gave rise to a general housing shortage that has been overtaken in very few countries.

"This shortage could be combated only by means of public assistance, private enterprise having ceased because it was unprofitable. The increase in building costs commenced immediately after the war and is still general. Some countries, however, report that the building index has fallen to half what it was at its highest level. The average building index for 1927 is between 163 and 175 (pre-war 100).

The American visitor is much impressed with the sharp contrast of magnificent public open spaces and congested living conditions which characterize many cities of continental Europe; but he is delighted to see in some of the post-war housing—such as that of Vienna illustrated on the facing page—new standards for workingmen's homes which many an American city might well emulate.

"Costs reached their peak in 1920 in England (370), Denmark (350) and Holland (370), and in 1919 in Switzerland (276). In all these four countries it has now assumed the normal standard of from 163 to 175."

At the final session of the Congress, George B. Ford, of New York, who had presided over the all-day sessions of the housing subject the day previous, reported virtual unanimity of opinion from fifteen or sixteen different nations represented in the discussions, that low-cost housing at an economic rent which the laboring classes can afford to pay is a practical impossibility.

"The result of this is that one of three ways must be applied to solve the problem:

1. Governmental subventions
2. Philanthropy
3. A reduction of the cost of building itself

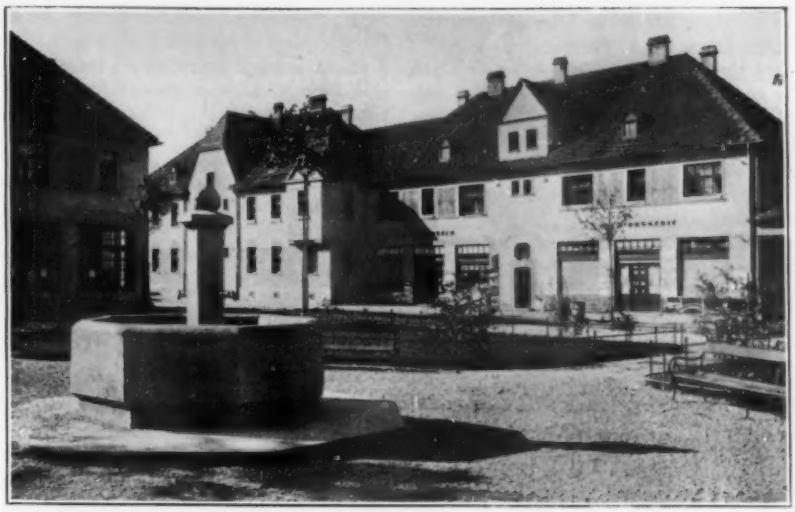
"In almost every case, there was a feeling that some sort of governmental subvention is absolutely necessary for low-cost housing. The remission of taxes alone was not considered sufficient in most cases. Therefore, the demand was made that governmental loans, at an especially low rate of interest, be provided wherever it was feasible or possible. Private philanthropy should be used wherever available, but it was recognized that private philanthropy alone would not solve the problem of low-cost housing. Therefore it remains to consider the problem of cheapening or lowering the cost of construction itself, and in that respect it was brought out that the experiments which have already been made in various countries in reducing the cost by mass construction, have been carried about as far as possible, and we must find other and more radically different methods of reducing cost."

Mass and Density of Buildings in Relation to Open Spaces and Traffic Facilities

THAT "the authors of the papers have had no easy task, owing to the mass and density of the subject in relation to the space at their disposal," was the witty introduction to the general report prepared by M. E. H. Tjaden, Director of the Building Police, of Amsterdam.

Nothwithstanding these limitations, the papers gave much practical information as to standards adopted or proposed in the various countries reporting. The importance of adequate light and air for residence buildings was especially stressed by several of the speakers. The contribution of E. P. Goodrich, of New York, to this phase of the subject has already appeared in THE AMERICAN CITY.* Sir John Sulman, of Sydney, Australia, urged that every room occupied by human beings be open

* See the July number, page 121.



OPEN SPACES CHARACTERIZE VIENNA'S POST-WAR HOUSING

THE GARDENS OF A VIENNA "SIEDLUNG"

THE KINDERGARTEN OF A MODERN VIENNA TENEMENT

to the rays of the sun for at least two hours every day. Pointing out the fact that the fronts of buildings facing north in the northern hemisphere and south in the southern receive no sunlight during most of the year, Sir John's paper suggested that in planning a new town the streets should be set diagonally to the cardinal points.

Baurat W. Koeppen, of Berlin, was another strong advocate of sunlight and open spaces:

"The density of buildings in towns must be decided upon with due regard to the health and well-being of the inhabitants as well as to the methods of housing and the organization of the town as a whole. Health and well-being depend in the first place on the amount of sunlight in the rooms. It is essential that the whole floor, even of the lowest story, at the back of the building as well as the front, should receive direct daylight. It follows, therefore, given these conditions, that for five-story buildings (which is the highest number suitable for dwelling houses) the proportion of plot to be covered must be limited to three-tenths. For tenement dwellings a three-story structure seems best from the standpoint both of health and economy."

The English town planning regulations as to the proportion of a plot that may be covered by buildings—ranging from one-quarter to one-half for those wholly or partly residential—were explained by H. V. Lanchester, Past President of the Town Planning Institute of England. As to *public* open spaces, Mr. Lanchester proposed the following formula:

"The basic proportion of public open spaces would be 8 per cent of the total area plus a percentage figure (taken as 1.5) multiplied by the number of houses per acre. This would give the following proportion of public open space (including roads):

6	houses	per	acre	8%	plus	(1.5%	times	6)	equals	17% of open spaces.
8	"	"	"	8%	plus	(1.5%	times	8)	equals	20% " " "
12	"	"	"	8%	plus	(1.5%	times	12)	equals	26% " " "
16	"	"	"	8%	plus	(1.5%	times	16)	equals	32% " " "
20	"	"	"	8%	plus	(1.5%	times	20)	equals	38% " " "

"All these percentages would leave the houses with a sufficient proportion of plot not built upon, while the advantage of a sliding scale such as this are five in number:

"1. As the roads would, because of the expense of road making, occupy no more than the minimum permitted (except where the authority contributed to the cost because of extra traffic needs), there would be a maximum space remaining available for playgrounds and other purposes.

"2. This remainder would be related to the density of population.

"3. The cost of reserving traffic routes would be reduced, for judicious planning would enable such reservations to be made without adding to the prescribed ratio of land to be used for roads.

"4. The formula would slightly favor the adoption of lower density ratios.

"5. A general provision on these principles would allow a greater freedom in planning than would a series of restrictive regulations.

"It may also be pointed out that such a requirement would not materially affect the value of the land, as it would not affect the number of the houses, nor would it increase the road costs. If adopted, it might be desirable to increase the size of the unit of land developed beyond that now customary, so that larger recreation grounds might be obtained where necessary."

Dissent was expressed by Robert Whitten, of New York, from what appeared to be the prevailing European opinion, that five stories should be the height limit for residence buildings, but the speaker emphasized the importance of adequate open spaces for buildings of all types:

"As to business areas, I think that adequate provision of light and air both in the buildings and in the adjacent streets should be the primary consideration in regulating the height and bulk of buildings. Street traffic capacity should also be considered, but, principally from the point of view of requiring appropriate setbacks from the property line, and this sometimes quite regardless of the height and bulk of the building.

"Even a single-story business building erected in a neighborhood business center should be set back from the property line a sufficient distance so that automobiles and trucks coming to the center may have a place to stand without interfering with the traffic flow.

"Large commercial buildings should be required to provide off-the-street loading and unloading space for the vehicles serving the building. The size of this required loading space should vary with the use and floor area of the building. . . .

"Height of residence buildings should be limited with relation to the provision of adequate open space on the lot for access of light and air and for garden and play purposes. There should be a play-yard in connection with every multi-family house. The area of the play-yard should increase with the floor area of the building."

At the final session of the Congress, John Nolen, of Cambridge, Mass., presented a summary of the main points discussed at the sessions on Mass and Density of Buildings in Relation to Open Spaces and Traffic Facilities, the three concluding paragraphs of which follow:

"There appeared to be no dissent to the opinion that normally the one-family house is the most desirable, but there was considerable difference of view as to the number of dwellings per hectare* of the building area, some proposals being as high as 50 per hectare, and some as low as 25.

"The number of tenement-dwellings [families] per hectare of the building area was placed as high as 100 and as low as 50. The three-story structure for tenement dwellings was generally advocated for both health and economy. In the center of the city the five-story structure for tenement-dwellings was suggested as a reasonable limit, provided the whole floor of the lowest story received not only light, but a direct view of the sky.

"A striking feature of the discussion was that high buildings generally appeared to have no supporters, and no one questioned the necessity to establish sound and well-defined relations of a mathematical character, expressed in percentages, between the mass and density of buildings, the extent of both public open spaces and private open spaces, by zoning, and especially to the imperative needs of present and future traffic."

* A hectare is equivalent to 2.47 acres.

Legal and Practical Difficulties in Carrying Out Town and Regional Plans

THE general report on this subject was prepared by G. L. Pepler, Past President of the Town Planning Institute of England. A larger amount of control by national and state governments over city and regional planning was advocated than would conform with custom or constitutional limitations in America.

"It seems to be agreed," said Mr. Pepler, "that on the one hand the states should intervene sufficiently to ensure that comprehensive plans may not be thwarted by apathetic or unneighborly councils or by public or semi-public bodies such as railway companies, or water boards, and on the other, to render financial assistance to the extent that planning projects are national rather than regional or local. Also that the state should cooperate by paying attention to the views of local planning authorities in respect to determining sites for state services and routes for state roads, and the use of government lands, etc."

One of the practical difficulties in the carrying-out of town and regional plans, stressed by Thomas Adams, of New York and London, was the visionary character of some of the schemes proposed. Mr. Adams urged more consideration by city planners of the question of whether, in any given case, the expenditures necessary to carry out their plans could not better be made for some other municipal purpose. A somewhat different note was struck by M. R. Atkins, of London and Calcutta, who criticized

(*Continued on page* 151)

Providence Installs a New Garbage Disposal System

By FRANK E. WATERMAN

COMMISSIONER OF PUBLIC WORKS, PROVIDENCE, R. I.

FOR many years the collection of garbage in the city of Providence was handled by hog owners, operating under the supervision of the Board of Health. The garbage collected was taken to hog farms in outlying parts of the state. This system was very unsatisfactory and caused the city no end of trouble. Finally, the hog owners were forced to give up the collection of garbage, because they were unable to cope with the requirements of a rapidly increasing population. It was then decided to have the city take care of its garbage collection, and a survey was made of the most efficient and sanitary means of collection and disposal.

Investigations

A committee was then appointed to investigate the various means of collection and disposal. They visited incinerating plants of various types, reduction plants and hog farms. The hog farm was found to be out of the question, as there is no land in Providence available that would not be rendered unserviceable by the growth of the city; and the townships refused to allow the hauling of garbage through their thoroughfares. There was also a possibility that the townships might obtain injunctions to put the farm out of service, were it situated outside of the city. The reduction plants, it was learned, gave off objectionable odors and many of them were going out of use. The incinerating plant was found to be the most efficient and sanitary method of disposal. After thoroughly investigating each type of incinerator, the committee finally recommended the purchase of a two-unit, heavy-duty Decarie incinerator of 160 tons capacity per 24 hours. The site selected for the building of the incinerator is approximately one-half mile from the City Hall, and an average distance of one mile from the residential district. Construction began in the summer of 1927.

The land on which the incinerator stands contains about 51,842 square feet. The inside dimensions of the building are 61 by 99 feet. It is two stories high and of brick and concrete construction. Flanking the main building is a garage of 20-car capacity and a scale house, both of fireproof construction.

Collection

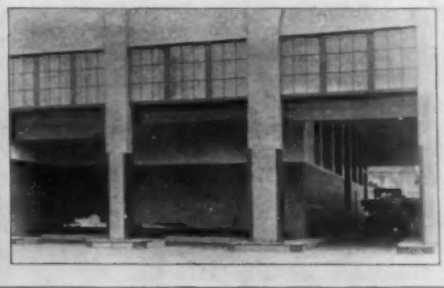
In the summer of 1927, the Commissioner of Public Works was given supervision of the collection of garbage and refuse and its disposal and the authority to appoint a superintendent of the Incinerator Department. Under the Commissioner's direction intensive study of methods of garbage and refuse collection was immediately started. The collection of refuse is a new service provided with the adoption of the method of incineration. Two and one-half ton trucks were found to be the most economical and efficient in that the running time between the routes and the incinerator is considerably less than when horses and teams were used. Horses and teams were, however, considered for short hauls.

The city is now divided into 16 routes during the winter months and into 21 routes during the summer. Each route supports a uniform tonnage per mile. The winter schedule requires sixteen 2½-ton trucks, each manned by one driver and two helpers. The routes are covered twice during the week, the trucks starting at 6 A. M. and covering a certain portion of the route within 9 hours. The summer schedule requires sixteen 2½-ton trucks and five 2-horse teams, each manned as in the winter schedule. The routes are covered three times during the week, the trucks starting at 5 A. M. and covering the assigned portions of the route within 9 hours.

Only Wrapped Garbage Collected

All garbage and refuse collected must be wrapped and tied, by an order of the Board of Aldermen, which reads as follows:

"*Chapter* 1, *Rule* 23. *Pertaining to Garbage.*—The owner or occupant of any premises where swill or garbage shall accumulate, shall provide a covered, watertight container on said premises for such swill or garbage, and shall deposit or cause to be deposited all such swill or garbage in said receptacle. Said swill or garbage before being so deposited shall be thoroughly drained and wrapped and tied in substantial paper. And said owner or occupant shall not locate such receptacle in any place which is not satisfactory to the superintendent of health. No person shall deposit any garbage in any other place than such a garbage receptacle as is herein prescribed; and no person shall deposit any dish-water or liquid refuse or any ashes, bottles, broken glass or crockery, or any refuse other than garbage in any garbage receptacle. All waste paper, excelsior, rags, old clothes, bedding or other combustible rubbish or refuse which will scatter if loose shall be fastened together by tying or otherwise and be so placed on the premises as to be easily collected."



THE EXTERIOR, UNLOADING ALLEY, AND CRANE OF THE PROVIDENCE INCINERATOR

City of Providence

Operation of Garbage and Refuse Disposal Department

Month ending _____ 192__

Cost of Collection						
Investigator						
Truck Drivers						
Collectors						
Garage Labor						
Equipment						
Truck Repairs						
Gasoline ..... Gals. @						
Oils ..... " "						
Grease ..... " "						
Tires						
Light						
Water						
Watchman ½ time						
Miscellaneous						
Cost of Incineration						
Engineers						
Craanemen						
Heppermen						
Firemen						
Floormen						
Laborers						
Watchman ½ time						
Oil ..... Gals. @						
Grease ..... " "						
Light						
Stationery, etc.						
Telephone						
Repairs						
Water						
Miscellaneous						
Administration						
Superintendent						
Clerk						
Weigher						
Total Cost						

Tons of Garbage and Refuse Route 1	Cost per ton for collection
" " " " " " 2	" " " " incineration
" " " " " " 3	" " " " administration
" " " " " " 4	Total cost per ton
" " " " " " 5	
" " " " " " 6	
" " " " " " 7	Ashes
" " " " " " 8	
" " " " " " 9	Complaints received
" " " " " " 10	
" " " " " " 11	Average time required per route
" " " " " " 12	
" " " " " " 13	
Total	
" " " " Complaint	
Commercial	
Total	

FORM USED TO CHECK COSTS OF OPERATION OF GARBAGE AND REFUSE DISPOSAL DEPARTMENT

The object of the above ruling is to eliminate free water from the garbage and to facilitate handling. The absence of free water aids the combustion which is necessary to the successful operation of an incinerating plant. We find that 30 to 35 per cent rubbish is needed to burn 65 to 70 per cent garbage. The wrapping of garbage also considerably reduces fermentation and odors. The elimination of obnoxious odors from the streets of the city caused by passing garbage trucks is one of the many merits of the new system.

The public of Providence strenuously opposed the wrapping of garbage, but after trying the new way for a while they found the task not so distasteful as it was first imagined. The new system was received satisfactorily and the housewives of Providence were pleased that they were enabled to keep their kitchens and yards more sanitary with little or no added inconvenience. With the collection of refuse such as papers, old rags, old furniture, etc., the fire menace has been greatly reduced and sanitation increased.

Commercial Refuse

For receiving commercial refuse, as the city collections are from households only, there are pits at which commercial vehicles can unload. There are also six stalls in the garage used as an auxiliary to the pits. All unloading of commercial and collection vehicles is carried on inside the buildings to prevent the scattering of loose papers and other refuse on the premises or in the street. Commercial refuse does not come under the above rule. The steel containers used in the garage are mounted on small trailers and drawn to the main building by automotive power consisting of one ½-ton Ford truck and one Fordson tractor.

Collection Equipment

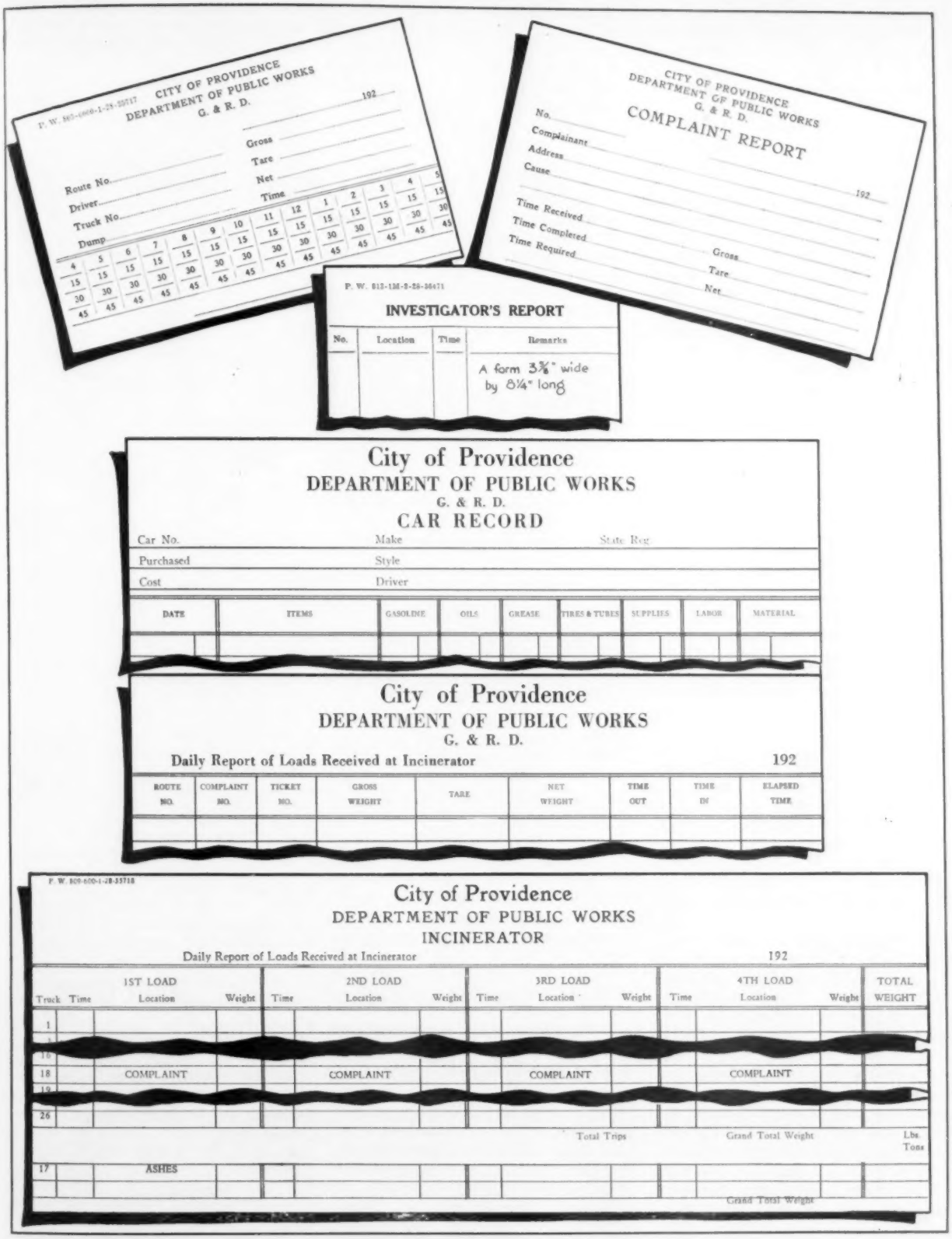
The equipment of the collection system consists of sixteen 2½-ton trucks, and five 2-horse wagons, each carrying two steel containers of 2 cubic yards capacity level full. These are used on the regular routes. One 2½-ton truck is used as an auxiliary, one Fordson tractor and one 1½-ton Ford truck used to draw the small trailers from the garage to the plant; one 2-ton Ford dump-truck is used as an emergency truck to collect where complaints are made that a household has been overlooked. There are two Chrysler coupés for the investigators. Each truck is visited at least twice a day by the investigators, and failures to comply with the above rule are investigated by them.

Disposal

Upon the arrival of a truck at the incinerating plant it is weighed at the scale house and its gross, tare and net weight recorded on a ticket that also has provisions for the driver's name, the number of the truck and the route, the time of the driver's arrival at the plant, and the location on his route at which he finished loading his truck. The truck is then driven to the rear of the incinerating plant and through an alley, built into the side of the building, where it is unloaded. A traveling crane of 5,000 pounds capacity lifts the containers up to the second floor and dumps the refuse into the hoppers or chargers. Clean containers are then placed on the truck, which returns to the route. The small trailers and the pits are unloaded in the same manner.

Operation of Incinerator

When refuse is dumped into the hoppers it goes directly into the furnaces or incinerators and is held in a basket grate until dried by the fire on the fire grate. There are two firemen who care for the feeding of the lower grate by pulling the dried refuse down from the basket grate. Forced draft is afforded by two steam-driven induction fans and a 175-foot chimney built on its own



CITY OF PROVIDENCE
DEPARTMENT OF PUBLIC WORKS
G. & R. D.

Route No.
Driver
Truck No.
Dump

Gross
Tare
Net
Time

CITY OF PROVIDENCE
DEPARTMENT GF PUBLIC WORKS
G. & R. D.

COMPLAINT REPORT

No.
Complainant
Address
Cause
Time Received
Time Completed
Time Required
Gross
Tare
Net

INVESTIGATOR'S REPORT

No.	Location	Time	Remarks
			A form 3⅜" wide by 8¼" long

City of Providence
DEPARTMENT OF PUBLIC WORKS
G. & R. D.
CAR RECORD

Car No. Make State Reg.
Purchased Style
Cost Driver

DATE	ITEMS	GASOLINE	OILS	GREASE	TIRES & TUBES	SUPPLIES	LABOR	MATERIAL

City of Providence
DEPARTMENT OF PUBLIC WORKS
G. & R. D.
Daily Report of Loads Received at Incinerator 192

ROUTE NO.	COMPLAINT NO.	TICKET NO.	GROSS WEIGHT	TARE	NET WEIGHT	TIME OUT	TIME IN	ELAPSED TIME

City of Providence
DEPARTMENT OF PUBLIC WORKS
INCINERATOR
Daily Report of Loads Received at Incinerator 192

Truck	1ST LOAD Time	Location	Weight	2ND LOAD Time	Location	Weight	3RD LOAD Time	Location	Weight	4TH LOAD Time	Location	Weight	TOTAL WEIGHT
1													
18		COMPLAINT			COMPLAINT			COMPLAINT			COMPLAINT		
26													
								Total Trips			Grand Total Weight		Lbs. Tons
17		ASHES											
											Grand Total Weight		

TYPICAL FORMS USED IN PROVIDENCE, R. I., TO ASCERTAIN ACCURATELY THE EFFICIENCY OF THE OPERATIONS OF GARBAGE AND REFUSE COLLECTION AND DISPOSAL

foundation outside of the building. To the rear of each furnace is a combustion chamber in which odors and smoke are burned. The grates are dumped approximately every four hours. The ashes fall into pits or cooling chambers in the basement. Beneath the pits are steel ash cars for carrying the ashes, on an industrial railway with turntables, to

elevated bins, where they are stored until a time convenient for removal to the city's park to be used for fertilizer. A truck is driven under the bins and loaded from a hopper by gravity.

Personnel

The personnel of the plans is as follows: two engineers, eight firemen, ten hoppermen, five floormen, two cranemen, and one watchman at one-half time. There are two shifts of nine hours each, one starting at 6:30 A. M. and ending 3:30 P. M., the second starting at 3:30 P. M. and ending at 12:30 A. M.

The equipment of the plant consists of six steel containers and six small trailers for commercial accommodation, a 1-2½ ton dump-truck for the removal of ashes, and 74 steel containers for replacing loaded ones on the collection trucks. There is also a sedan used by the superintendent.

The personnel of the collection system is as follows: two investigators, twenty-one drivers, forty-two helpers, and one watchman at one-half time.

Office and Repair Shop

The repair shop for the maintenance of trucks and autos is fully equipped to handle all repairs and is taken care of by two repairmen and a garageman. The garageman checks the mileage of the trucks, cares for the batteries and minor parts, and supplies the drivers with oil, grease, and waste. Gasoline is dispensed at the scale house, where there is a 10,000-gallon electric filling station.

The office is located in the scale house, where there are a clerk and a checker. The checker weighs each load, cares for complaints, and makes up the load reports. The clerk cares for the regular routine pertaining to costs, etc.

The superintendent's office is in the main building. The approach to the plant is of reinforced concrete, and the lawns have been graded and grass planted. The grass is bordered by various kinds of shrubs and the present appearance is a great improvement over the hog owners' depot which was located on property adjoining the present site.

Costs

The following are the initial costs of the Incinerator Department: Contract price, including cost of building, furnaces and full equipment, $352,500; extras due to foundation troubles, $12,903.64; making a total of $365,403.64. Cost of garage, boiler house, scale house and scale, also plumbing, lighting and sprinklers, $36,067.98. Cost of trucks equipped with cradles and automobiles, $57,000. Cost of land, $46,053.76. Cost of 120 steel garbage containers, of 2 yards capacity level full, $8,400. The payroll is estimated to amount to $194,000 per year.

The old system cost approximately $125,000 annually. Although there are no figures available for determining the cost of the present system in operation, it is figured it will cost $225,000 annually. The city officials feel that the additional cost will be justified if the city's requirements as to health and sanitation are adequately cared for. They also feel that the new system creates a keener interest in civic development and a greater civic pride, and develops a better and cleaner city, and a more beautiful and attractive place in which to live.

The World's Largest Buildings

THE building of mammoth structures under the influence of the skyscraper epidemic continues, with new contenders for the dubious distinction of surpassing size. No list can therefore be static; but Stanley L. McMichael of Cleveland, in compiling data for a new book, has prepared the following table, which appeared in a recent issue of the *National Real Estate Journal*. The buildings are arranged in the order of their rentable area:

Building	City	Size of Land in Sq. Ft.	Height in Stories	Height in Feet	Cubic Feet	Rentable Area in Sq. Ft.
Furniture Mart	Chicago	113,931	34	478	28,000,000	1,514,637
Equitable	New York	48,975	Bldg. 37	550.6	24,000,000	1,236,000
			Tower 6			
			Total 43			
General Motors	Detroit	190,500	15	220	20,411,000	1,125,871
Railway Exchange	St. Louis	61,550	21	250	18,898,000	1,118,683
Graybar	New York	68,300	31	400	16,000,000	1,005,000
Union Trust	Cleveland	98,000	21	260	20,000,000	990,000
Illinois Merchants	Chicago	56,564	21	260	17,850,000	887,500
Cont. & Com. Bank	Chicago	53,569	21	300	17,000,000	700,000
Terminal Tower	Cleveland	71,527	Bldg. 16	708	12,000,000	560,000
			Tower 36			
			Total 52			
Woolworth's	New York	29,455	Bldg. 30	792	13,200,000	538,933
			Tower 28			
			Total 58			
Straus	Chicago	27,478	Bldg. 22	410	10,000,000	400,000
			Tower 12			
			Total 34			

Other tall structures include:

	Feet
Eiffel Tower, Paris	999
Metropolitan Power, New York	700
Singer Tower, New York	612
Washington Monument, Washington	556
American Insurance Union, Columbus	555
Bankers' Trust, New York	539
City Hall, Philadelphia	535
Cologne Cathedral	512

Mr. McMichael remarks:

"It may be that the list may need a little revision, but as far as the facts which have come to me indicate, these are the country's biggest buildings at present. More monsters may follow, but it seems to me that cities would be far better off if a reasonable height limit of 200 or 250 feet was adhered to. With huge structures such as these jammed into a district, as they are on the lower end of Manhattan Island, new traffic problems are offered, which are not known where the heights are regulated as they are in most cities."

City Officials Division of American Road Builders' Association Organized

ON June 8, 1928, the new City Officials Division of the American Road Builders' Association was organized, with Captain H. C. Whitehurst, Assistant to the Engineer Commissioner of the District of Columbia, as President. The new Division adopted a constitution and formulated plans for carrying out the objective for which the Division was organized. Twenty-four states were represented at the session, which was addressed by Colonel R. Keith Compton, Chairman of the Department of Public Works, Richmond, Va. Colonel Compton emphasized the need for a city officials organization and visualized the services it could render to the cities of the United States. The officials and members of the Board of Directors of the Division are: President, Captain H. C. Whitehurst, Washington, D. C.; Secretary, Charles M. Upham, Washington, D. C.; Treasurer, James H. MacDonald, New Haven, Conn.; Vice-Presidents, C. E. Myers, Philadelphia, Pa., Ben F. Davison, Houston, Texas, W. R. Hopkins, Cleveland, Ohio, and John C. Shaw, Los Angeles, Calif.; Directors, Robert B. Brooks, J. P. Broome, W. P. Cottingham, R. M. Gregory, W. J. Jamieson, Charles Henry Moon, Bryson Vallas, A. D. Butler, C. E. Clarke, Thomas B. Crutcher, William A. Hansell, H. C. McClure, H. E. Nettleton, Ira T. Redfern, A. Mason Harris, O. Laurgaard, Thomas B. Oakley, Harry C. Shaner, Nathan L. Smith, George B. Sowers and James H. Sullivan.

The Selection of Road Maintenance Equipment

By F. A. NIKIRK
HIGHWAY ENGINEER

PUBLIC road maintenance is one of the most important branches of engineering construction. Those engaged in this work, however, have often been slow to apply the principles of scientific management, for two reasons:

1. It is not generally conducted for a profit, and the results of efficient management and proper methods are not measured in dollars and cents, but in convenience to the public.

2. The amount of work necessary to obtain the desired results is not always easy to predetermine and to specify, and there is no uniform system of cost accounting upon which to base comparisons of efficiency.

It is like other construction work in that it requires the same type of planning and the same type of managing and directing ability. Some maintenance work approaches construction so gradually that there is no well-defined line of distinction. A marked example is found in "betterments," involving changes in the line or grade of the road and requiring the moving of considerable earth. Sometimes an attempt is made to draw a distinction based entirely upon cost—the work estimated to cost more than a certain fixed amount being called "new construction," and work costing less being considered as "maintenance." Such a distinction is purely arbitrary, and serves as a matter of policy to determine whether or not such work should be let by contract. The same methods are adaptable whether a piece of work is let by contract or is done by maintenance forces, and the same type of organization should be employed. If we review briefly the development of management as applied to the broad field of engineering construction, it will be easy to see what an important part the selection of proper equipment plays.

One does not have to look back a great many years into the history of construction, to find the time when work was gaged by the amount of man-power involved. The magnitude of a job was determined by the number of men employed. The speed with which work could be accomplished was often fixed either by the labor market, or by the number of men who could work without getting in each other's way. In those days, efficient management consisted of a dominating personal force, by which the possessor obtained more than a normal amount of work from the laborers. Many men rose to a prominent and picturesque position in the construction field through sheer physical domination. These men were known as leaders, or more often, as drivers of men.

Some of the more far-sighted of them saw that they could speed up production and reduce costs by the selection of certain tools or equipment, and in the evolution we see the wheelbarrow giving way to the scraper, and the "stick" wagon replaced by the dump-wagon. Such equipment was generally drawn by horses or mules. A new demand was then placed upon efficient management. While the primary requisite was still physical domination, the boss also had

TRACTOR AND SCRAPER ON ROAD MAINTENANCE

to know how, and under what conditions, to use the equipment available.

Then came a study of the conditions under which both men and animals worked to best advantage, and coincident with it came the introduction of power machinery. We now have an entirely new concept of management, and the picturesque old chap who grew to leadership in doing things by brute strength and awkwardness has faded from the picture, unless he has accepted the new order of things.

Modern requirements demand:

1. A knowledge of business methods, the rules and usages governing purchasing, financing and cost keeping, and a knowledge of the laws limiting, as well as protecting, construction activities.

2. The application of these scientific principles, which have been more recently glorified by the term *"production engineering,"* including a study of the work to be done, the adoption of economical methods, the employment of men who can do their work easily, rather than those whose energy is spent in overcoming unnecessary difficulties, the selection of the proper tools and equipment, and the arrangement of the organization so that a proper balance is maintained between its various integral parts.

There is an old axiom that has a direct application to equipment—*"If you need a tool, you pay for it whether you buy it or not."* That this is not more generally recognized, is due to the fact that there is no column in the ledger in which to set forth the amounts of money unnecessarily spent on account of not having the proper equipment. These amounts may be approximately determined by a comparison of costs on similar kinds of work. Such comparisons should be made only with a full and complete knowledge of all the conditions and elements affecting the job. A uniform system of cost accounting would be of great assistance to those engaged in road work in making such comparisons, and would therefore be valuable in determining the amount and type of equipment most economical for a given project.

The selection of equipment is a two-fold problem. The type of equipment must be determined, and the particular make must be chosen.

Determining the Type of Equipment

Since the general problem of road maintenance is to do certain work in a satisfactory manner at the minimum cost, it is well to know what elements go to make up the total cost, and what effect equipment has on it. From this standpoint, costs may be classified under three heads:

1. Productive costs, which include the expenditures for labor and operation of equipment, actually engaged in production.

2. Non-productive costs, such as moving to and from the job, and getting it organized, and charges for depreciation on equipment, insurance, etc.

3. Delays, which may be charged either to poor management, equipment breakdowns, or weather conditions. While this third group does not appear as a separate ledger account, it has a very important bearing upon the cost of the work.

The selection of equipment and the adoption of methods are interdependent. It is obvious that these two go hand-in-hand. Once they have been determined, the job costs per day are fixed within very narrow limits. The only way to reduce the unit costs, or the cost per mile, as the case may be, is to increase

the output. It costs the same to operate a given grading outfit, whether five or ten miles are covered in a day. Likewise, it costs approximately the same to operate a steam shovel, whether 500 or 700 cubic yards of earth be moved in a day.

Productive Costs

Most work consists of several operations which must be properly coordinated, in order to obtain the proper results. Thus, earth moving consists of:

1. Loosening the soil
2. Loading
3. Hauling
4. Placing, which includes spreading and compacting

The relationship of one of these operations to another, on a well-organized job, is apparent. The equipment in each must be balanced with the others.

The major production unit must be kept working at as near its rated capacity as possible. The ratio of the actual production to the output capacity has been termed the "load factor." To keep down unit costs, it is necessary to *keep the load factor as high as possible.* This is particularly true of the primary unit. Secondary equipment should be arranged to meet the requirements of the primary producer. Often a slight excess of this secondary equipment is advisable to provide against minor delays.

Non-Productive Costs

It is important also to keep in mind the non-productive costs. A steam shovel may be an ideal piece of equipment to use on a certain line change, providing it were on the job, but if it costs $1,000 to move it to and from the job, and the yardage to be moved is small, this non-productive expense may make the cost per yard excessive. As another example, we may take an expensive piece of snow-removal equipment which, though efficient, is so constructed that no part of it can be used for any other purpose. If such equipment be used only thirty or forty days per year, the annual charges, distributed over these few days, makes its daily cost run high.

Delays

The possibility of delays must also be considered. The loss of time in a single operation may be very small but, if recurring often enough during the day, may amount to considerable delay. Men left to their own devices may adopt poor methods of handling equipment, and continued experience tends to fix the poor way rather than to develop a better one.

The type of machine should be selected which is adapted to the particular kind of work, and which may be relied upon to continue in service for a reasonable period of years, with the minimum number of breakdowns. Such breakdowns not only entail a cost for repairs and parts, but they add a greater cost due to disrupting the organization. Though sturdy construction is a primary requisite, the proper care of equipment helps to reduce delays due to breakdowns.

Weather conditions also have an effect upon the cost of the work—hence the need of selecting equipment that will be least affected. Adverse weather may be classified into wet weather, hot weather, and cold weather.

The effect of the weather may be to conduct the work at a reduced rate of output, or may even result in a complete stoppage of the work.

In a recent article, J. L. Harrison, of the U. S. Bureau of Public Roads, makes the following statement:

"There is very little equipment that can function through all kinds of weather with full efficiency, but the fact that bad weather affects some styles less than others makes a study of the situation well worth while. Crawler tractors will keep a grading job running, in face of weather conditions or ground conditions that will stop any other type of hauling equipment. Idle time cost is low. On the other hand, because of the ability of these machines to work in bad weather, the amount of lost time is low. On this account, even on those jobs where the haul is so short that the crawler type tractor has little or no advantage over teams in the matter of production cost, the fact that lost time is less of a draft on gross profits makes their use advisable."

Choosing the Make of Equipment

Having determined the type of equipment to be used, with full consideration of its adaptability, that is, the ability to do the maximum amount of work at the lowest unit cost, and the ability to fill the needs for the greatest number of days per year, the next problem is to select the particular make of equipment.

In selecting the make of machine, due consideration should be given to the character and reputation of the manufacturer, the service rendered by the dealer, the capacity and performance of the machine, its sturdiness and lasting qualities, its ease of operation and positive control, and, lastly, the price.

Only too often, equipment is purchased by just plain "price buying," without regard to the merits of the particular machine or the service rendered by the dealer. Any machine is liable to require parts occasionally, and these should be furnished promptly and at a reasonable price. Delays due to poor service on repair parts are expensive.

A prominent state highway official recently made a statement as follows:

"In choosing an equipment type, the most important consideration is that the equipment selected must do the job that you have for it, and that it must continue to do this job over a reasonable period of years. I mean by that, that the type must be proven. A particular type machine has not established its right to serious consideration until it has been operated under typical conditions for a year or more. Do not construe from this that the purchase of new designs is undesirable. Every state should buy new developments of machinery adapted to their work, but such purchases should be limited to a few experimental outfits, until the machine has proven itself. Personally, I do not look with favor upon so-called demonstrations. I never yet saw a machine fall down on a demonstration. A clever operator and a wisely selected road will put over any machine for a few days or weeks.

"Also look to the power of any equipment you are considering. Horse-power ratings are not always reliable, and an under-powered machine is a constant expense and irritation. The fuel cost is another item which should be investigated. It is not enough that the machine does the work required of it, but it should do this work at an economical operating cost.

"Then, last but not least, in determining the dealer from whom you will make your purchase, keep in mind that it is always desirable to deal with a well-established firm. Our junk-yards are full of useless orphaned machines. The amount of money represented by this junk is a tremendous sum, and, in my mind, is one of the few public road expenditures which are open to criticism. In this day of rapidly changing conditions and methods, it is a problem for any machine company to keep its equipment abreast of the times. Machines are continually developing weaknesses and proving unequal to the constantly increasing tasks to which they are put. These so-called 'bugs' require study and adjustment. If, when a machine is sold, the seller considers the deal closed, that machine is an undesirable purchase. Be sure the company you deal with is one that takes an interest in its sales, not only until your name is signed on the dotted line, but continually thereafter through the entire life of the machine."

Maintenance of Equipment

The particular equipment having been purchased, care is another item. Road machinery should be properly housed and well lubricated, and kept painted. An operator is less apt to abuse a machine that is kept in good condition, and will take a pride in one which has a good appearance. Pride in the appearance and performance of equipment is also a factor in the output.

In conclusion, the important factors are:

1. Select the type of equipment that will do the particular job at the lowest unit cost, and will continue on the job for a reasonable period of years.
2. Buy a proven machine from a reliable dealer who will give you service and repair parts at a reasonable cost.
3. Put it in the hands of a trained operator who will use it efficiently and not abuse it.
4. Keep it well housed, well painted, and well lubricated.

The Cost of Excavating with Small Trenching Machines

By H. S. GREENE
VICE-PRESIDENT, BARBER-GREENE CO.

A SMALL trench machine is a machine to cut about 24 inches wide and capable of digging from 6 to 8 feet deep. This machine should be full crawler mounted and with three-point suspension, and must be designed to travel fast from one part of the job to the other.

Types of Trenching Machines

Trenching machines of the continuous cutting type may be divided into three classes—ladder, wheel, and vertical.

In the ladder type the digging element consists of an inclined boom much like a ladder, this being pivotally secured to the frame of the machine. The upper end has the driving sprocket, and the lower end the idler sprocket, and the chain to which the digging buckets are attached runs over these sprockets. The ladder type machine is generally used where ditches are 6 feet or over in depth.

The wheel type machine gets its name from the fact that the digging buckets are attached to a revolving wheel. This type is built by three manufacturers and, because of its design, is usually used for shallow trenches.

The vertical boom type trencher was primarily designed to operate in close quarters and at the same time eliminate weight. In order to do this, the digging element is mounted vertically. This feature of the design permits the buckets to be held positively to the work and at the same time they are arranged so that they can spring back under excessive strain. The machine is very short over all, which allows it to maneuver quickly in close quarters. It can dig straight across the street. Vertical boom machines are now built to dig up to 9 feet deep and from 4 to 24 inches wide.

Crawler Mounting

Certain elements of design seem to be accepted by all the manufacturers of small machines and will be found more or less constructively worked out.

The small trencher should be entirely supported on two crawlers. Also, it should have a wide range of travel both for road and digging, and the operator should be able to change instantly from one speed to the other to suit varying soil conditions.

Bucket Cleaners

One of the big problems that all trench machines face—and this also applies to steam shovels and dragline excavators—is the discharging of sticky materials from the buckets. All trench machines require a bucket cleaner or some method of discharging the sticky clay. In the ladder type the cleaner must be used all the time unless the digging is in a sand or gravel formation. The cleaner is made up of a cleaner plate which conforms to the shape of the bucket. This plate is mounted on a steel casting which is suspended on the head shaft. A coil spring is used to hold the plate in position. Then, as the buckets crowd against it, the spring tends to compress, and after the buckets pass, the recoil

PERFORMANCE OF TRENCHING MACHINE—MACHINE VERSUS HAND METHODS

	Nature of Work				Machine										Hand Work				Saving	
Trench Excavation	Nature of Soil	Width of Trench	Depth of Trench	Trench Feet Dug.	Man Hrs.	Labor Cost	Mach. Hrs.	Fuel Cost	Repair Cost	Freight or Drayage	Int.	Depreciation	Total Cost	Cost per Trench Foot	Man Hrs.	Labor Cost	Tool Expense	Total Cost	Cost per Foot	Per Trench Foot	Total Saving
In parking—no lawn	Hard dirt	18″	3.5′	9110	383	181.87	164	58.30	95.00	...	42.64	85.28	463.09	.05	4354	1883.18	139.42	2022.60	.22	.17	1159.51
" " " "	" "	18″	4′	356	30	12.94	10	3.60	4.00	...	2.60	5.20	28.34	.08	166	72.87	8.50	81.37	.23	.15	63.03
" " " "	" "	18″	5′	325	16	8.00	8	2.40	3.50	...	2.08	4.16	20.14	.06	223	97.56	6.80	104.36	.32	.26	81.22
" " " "	" "	18″	5.5′	200	16	8.00	8	2.40	2.25	...	2.08	4.16	18.69	.09	160	70.00	6.80	76.80	.30	.29	57.91
" " " "	" "	18″	3.2′	1553	84	42.18	40	18.14	18.00	...	10.40	20.80	109.52	.07	835	365.55	34.00	399.55	.26	.19	290.05
" surfaced street	Loam	18″	3.5′	2451	92	41.55	41	13.75	17.00	...	10.66	21.32	104.28	.04	992	428.88	30.20	459.08	.19	.14	354.80
" Paved "	"	18″	3.′	104	3	1.40	1	.50	1.00	...	.26	.52	3.68	.04	37	16.20	.85	17.05	.16	.13	13.37
Unsurfaced "	Hard dirt	18″	3.5′	2850	136	72.00	68	19.38	49.37	29.55	17.34	34.68	222.32	.08	1204	526.96	40.22	567.18	.20	.12	344.36
" "	" "	18″	4′	424	16	8.00	8	2.08	7.35	1.59	2.04	4.08	25.14	.06	175	76.34	5.84	82.18	.19	.13	57.04
Surfaced "	" "	18″	3.5′	1229	104	52.00	52	14.38	21.29	11.66	13.26	26.52	139.11	.11	526	221.23	17.57	238.80	.19	.08	99.69
" "	" "	18″	4′	233	24	12.00	12	2.40	4.04	2.24	3.06	6.12	29.86	.13	160	69.90	5.34	75.24	.32	.19	45.38
" "	" "	18″	5′	100	12	6.00	6	1.12	1.73	1.11	1.53	3.06	14.55	.15	72	31.50	2.40	33.90	.34	.19	19.35
" "	" "	18″	3.5′	4261	232	113.50	116	47.69	87.00	32.00	59.71	119.42	459.32	.10	2389	1045.40	79.79	1125.19	.27	.17	665.87
Paved "	" "	18″	3′	195	16	8.00	6	2.40	3.37	1.35	1.53	3.06	19.71	.10	80	35.10	2.67	37.77	.19	.09	18.06
Surfaced "	Rocky soil	18″	3.5′	693	44	22.00	22	5.76	...	11.03	8.41	16.81	64.01	.09	512	207.90	17.10	225.00	.33	.24	160.99
" "	Hard dirt	18″	3.5′	209	16	8.00	8	3.48	...	4.01	3.06	6.11	24.66	.12	155	62.70	5.16	67.86	.32	.20	45.20
Unsurfaced "	Rocky soil	18″	3.5′	700	38	19.00	19	6.89	...	9.53	7.26	14.52	57.20	.08	516	209.85	17.23	227.08	.32	.24	169.80
Paved "	Hard dirt	18″	4′	363	20	10.00	10	2.47	...	5.01	3.82	7.64	28.94	.08	178	72.45	5.96	73.41	.22	.14	49.47
" "	" "	18″	3.5′	424	22	11.00	11	8.70	...	5.52	4.20	8.41	37.85	.09	313	127.20	10.44	137.64	.32	.23	99.81
In parking—no lawn	Rocky soil	18″	3.5′	164	8	4.00	4	2.10	...	2.01	1.53	3.06	12.70	.08	121	49.15	4.04	53.19	.32	.24	40.69
" " " "	" "	18″	4′	397	20	10.50	10	4.09	...	5.01	3.82	7.64	31.06	.08	171	69.40	5.69	75.09	.19	.11	44.03
" " " "	" "	18″	3.5′	300	14	7.00	7	1.68	...	3.51	2.67	5.35	20.21	.07	148	60.00	4.94	64.94	.22	.15	44.73
" " "	Hard dirt	18″	4.′	231	12	6.00	9	1.52	...	4.51	3.44	6.88	22.35	.09	100	46.20	3.35	49.55	.21	.12	27.20
" " " "	" "	18″	3.5′	224	10	5.00	5	1.05	...	2.51	1.91	3.82	14.29	.06	110	44.80	3.69	48.49	.22	.16	34.20
Surfaced street	" "	18″	3.5′	1110	80	54.00	40	15.90	15.90	5.59	17.79	35.57	144.75	.13	1268	565.00	42.35	597.35	.54	.41	455.21
" "	" "	18″	4′	6639	416	234.00	208	74.38	69.10	29.04	92.48	184.77	683.97	.10	7584	3319.50	253.30	3572.80	.54	.44	2888.83
" "	" "	18″	4.5′	202	16	9.00	8	2.30	2.65	1.12	3.56	7.11	25.74	.13	231	101.00	7.72	108.72	.54	.41	82.98
Totals				35047	1880	966.94	901	318.86	402.55	167.90	323.14	646.07	2825.05	.08	22780	9865.82	761.37	10627.19	.30	.22	7804.14

A DITCHER AT WORK IN CALIFORNIA

DITCHER COSTS FROM DETAILED REPORTS FROM OWNERS

Year Bought	Age When Costs Figured	Width	Depth	Type of Soil	No. of Working Days	Total Dug	Speed of Digging	Total Investment	Overhead — Per Cent of New Delivered Price: Depreciation	Interest	Repairs Incl. Teeth	Total Overhead	Total in Dollars Per Year	Total in Dollars Per Working Day	Operating Expense Dollars Per Day: Operator	Helper	Gas	Oil, Grease Misc.	Total	Total Daily Expense Overhead and Operating	Average Dug Per Day	Cost Per Foot
1924	2 months	9"	4'(?)	Sand, clay, soil boulders in clay	52	46,231'(a)	36" a min.	$12,600(a)	9.9%	3.2%	0.14%	13.24%	$557.00(d)	$10.70(d)	11.10(a)	8.87(a)	3.80(a)	0.71(a)	8.09(i)	18.79	297'	6.34c
1925	1 year	9"	4'(?)	Sand, clay, soil boulders in clay	196	175,076'(a)	36" a min.	12,600(a)	37.7%	11.7%	3.4%	52.8%	2210.00	11.30	10.40(a)	8.71(a)	3.14(a)	1.66(a)	7.97(i)	19.37	300'	6.5c
1924	1 year	18"	3'8"	Loam, hard dirt, rocky soil	112½	33,047'	?	4,866	13.3%(e)	6.7%(e)	8.3%(e)	28.3%(e)	1371.76(e)	12.20	8.60	(j)	2.82	1.49	12.91	25.11	311'	8.1c
1926	2 months	18"	4'	?	54	18,570'	?	5,600	7.7%(f)	2.17%	0.04%(f)	9.91%(f)	555.50(f)	10.30	2.17	1.34	1.64	2.02	7.16	17.46	344'	5.08c(m)
1925	2 years	18"	5'	Boulder clay with some sand loam 50% hard digging	400(b)	100,000'	?	5,450	24.0%	3.5%	13.75%	41.25%	2230.00	11.25	5.00	0.00	2.50	(k)	7.50	18.75	250'	7.5c
1927	7 months	18"	4'	Boulder, clay and sand	176(c)	110,415'	?	5,500	20.0%(g)	8.0%	7.0%	35.0%	1925.00	10.80	6.50	4.50	1.46	0.39	12.85	23.45	620'	2.8c
1927	?	18"(?)	5'(?)	10,000' in hard pan	70	39,147'	....	5,950	12.7%(h)	3.8%	6.0%	22.5%	1341.00	19.16	7.70	3.21	1.72	8.17(l)	20.80	39.96	550'	7.2c

(a) Total for three ditchers
(b) Estimated
(c) 1,603 hours
(d) Each ditcher
(e) Ten months
(f) Two months
(g) Barber-Greene figure, reported by owner as 3%
(h) One job
(i) One ditcher
(j) Included in expense for operator
(k) Included in expense for gas
(l) This includes large charge for moving
(m) In publication of the Iowa State College Vol. XXVI, No. 34, page 17, reads 5.80 in error.

action tends to clean the plate. This cleaner is very satisfactory.

The wheel type machine uses a bucket with a removable back. In wet or sticky soil this back is taken off and the material is held in the bucket by means of gumbo fingers which might be likened to a pitchfork. Then what is called the sabre is added to the machine. This comprises a series of steel prongs spaced the same distance apart as the prongs in the bucket and, as the wheel revolves, these prongs pass through the buckets and strip out the dirt.

The vertical boom machine does not use a bucket cleaner as it is generally understood in relation to trench machinery. The buckets themselves might be spoken of as being self-cleaning. The bucket line is built up of two principal parts; that is, the bucket link, and the link above this, which might be called the cleaner link. This link has a lip on the lower part of it which passes automatically through the buckets when they pass over the head sprocket. The resulting action secures a positive discharge of any material. There is nothing to put on or take off at any time. The parts are always ready and automatically go into action when they are required.

A BARBER-GREENE DITCHER OPERATING IN A CITY STREET, SHOWING EASE WITH WHICH IT DODGES UNDERGROUND PIPES

Methods of Absorbing Shock

A safety device which will protect the machine from injury and eliminate the breakage of underground pipe, should be incorporated in every machine. There are three methods of absorbing shock: the first uses a belt drive between the engine and the machinery; the second a clutch which will slip under load; and the third a safety device which will release under excessive load.

The belt gives very satisfactory results. One manufacturer continues to use this between the engine and the machinery and, without question, this provides a safety factor, as all shocks and strains from the digging teeth are absorbed in the belt.

A master clutch may be built into the driving machinery and so designed that the pressure or power required to drive the machinery can be adjusted. The slipping clutch does not perform as satisfactorily as the belt. A slipping clutch operates very much better when mounted on the head shaft. This type of drive is adjustable and, preferably, this adjustment should be made at one point.

The vertical boom ditcher has a patented overload release. This spring cushion is built into the driving sprocket and is mounted on the head shaft. This not only absorbs the shock, but when the teeth come in contact with large stones and other obstructions in the trench, the springs compress and the driving machinery is released and the bucket line stops. The machine then can be stopped by means of the master clutch, and in doing this the overload clutch immediately returns to a working position. If the operator does not step on the clutch, the ditcher pulls again at the obstruction each half revolution of the head shaft and either loosens it or instantly releases. This action can be continued as long as the operator wishes to pick away at the obstruction. A safety device not only protects the ma-

chine, but also eliminates the breakage of pipes which may be buried underground. The driving power of the device may be changed by increasing or decreasing the tension on the springs, and it is sometimes advisable to vary these because of different digging conditions.

Ditcher Should Minimize Hand Work

The ideal ditcher should be designed so that it will leave a minimum amount of work to be done by hand when meeting obstructions. In city work this is frequently quite important. In a line parallel to the curbing, cross pipes may be encountered at regular intervals and there are also stones and crosswalks. The ditcher should be designed so that it will meet an obstruction without injury to the machine, and without injury to the pipe if such is encountered. Then the digging element must be arranged to raise over this obstruction and lower again to the proper depth, leaving the smallest possible amount of material to be excavated by hand. Many of the smaller machines today are used to dig house connections, and of course it is an advantage to be able to start close to the house. The machine should also have a very low bearing pressure per square inch of crawler surface.

Advantages of Small Machines

The need of a small trench machine is much more apparent today than it was several years ago. Then all mains were placed in the roadway, but today many engineers are recommending that they be put in parkways or alleys. Where this practice is followed, the small machine is the answer for excavating ditch. There is also another factor which influences one to consider the small machine, and that is the shortage of common labor. A small trench machine will do the work of 30 to 50 men.

The small machine was originally designed for city conditions but is able to give a very good account of itself on long distance cross-country work, where the machine is quite often operated 24 hours per day and where dependability is a matter of prime importance.

Cost of Operation

Having considered the general specifications of a small trench machine, the next problem is to analyze the cost of digging ditch. Results submitted by scores of users indicate a wide variety of methods in securing costs. For example, in the matter of depreciation, one contractor insists on writing off the whole cost of the ditcher on his first job. Occasionally a public utilities organization will take the opposite extreme and figure a fifteen-year life. Perhaps an average of these two is a fair depreciation and may be taken as five years.

In the item of interest on the investment, there is not much variation, as 4 per cent of the purchase price extending over the life of the machine is close enough for practical purposes.

Repairs can be determined with some accuracy by examining records for previous years, but any estimate for the coming season is at the best merely a guess. It is possible, however, to determine some sort of average from various reports which have been turned in by the owners of small machines. Expressed as a percentage of the purchase price, this can be used in estimating the cost of future work, assuming that no serious accidents will be encountered which will run the repairs beyond the average. This item should include the cost of all parts purchased, the cost of machine shop work, the cost of work by mechanics other than the operator, and even the cost of the operator's time when the work is done between jobs. This item should not include the operator's time for making ordinary adjustments or replacement of parts on the job, because his time will show straight through as that of the operating expense. As near as can be estimated, the repairs on a small machine, including the digging teeth, may be expected to run from 8 to 14 per cent of the purchase price.

An estimate based on a 5-year life carrying 6 per cent interest on the investment, including repairs of 12 per cent, will figure about $15 per day. This can be said to represent the overhead expense of operating a small machine. The daily operating expense, of course, can be determined exactly, using the operator's wages, plus gasoline and lubricating oil. In many conditions, a helper will increase the amount of ditch dug per day sufficiently to pay his wages many times over. Gasoline consumed will vary from 1 to 2½-gallons per hour, and oil and grease might be said to be a dollar a day. This is very liberal and from these it will be found that the total operating charge per day will be about $10, or possibly a little higher if a helper is used. This makes the total cost for operating a machine about $25 or possibly $30 per day.

In reducing these figures to a cost-per-foot basis, the most important item, of course, is the amount of trench dug per day. This may vary through a very wide range. The amount of trench dug per day may be limited by the laying of pipe, and the amount dug will also vary on account of material. For example, 400 feet in a caliche formation might be considered a good day's work, whereas 6,000 feet a day in top soil is possible where the digging is easy and only 30 inches deep. Between these two extremes there is such a variety of widths, depths and conditions of soil that an expert would have to be called in if it was desired to have a fairly close estimate of cost in advance. Even then there may be a large discrepancy between the estimate and the actual costs, due to the difficulty of determining the conditions underground.

TRACTION DITCHER CUTTING A TRENCH CLOSE TO THE EDGE OF A PAVED HIGHWAY

After varying the different factors to meet local conditions, the worst circumstances give $35 per day to operate a small machine. Assuming that only 500 feet of trench is dug per day, the cost would be 7 cents per foot. After checking this up with actual cost records submitted by various water-works organizations, a fairly close relation is noted.

Costs on Specific Jobs

One machine working in San Antonio cut ditch at a cost of 5 cents per foot. This was in a particularly hard formation where even with cheap Mexican labor, hand work cost 40 cents per foot. In Houston, trench 21 inches wide and 5½ feet deep cost 7 cents per foot. In Oakland, Calif., ditch 18 inches wide and 3½ feet deep was cut for 4½ cents per foot. In Chicago, Ill., ditch 18 inches wide and 4½ feet deep was cut for 4½ cents per foot. In Shreveport, La., ditch 18 inches wide and 5½ feet deep was cut for 5½ cents per foot.

In Norman, Okla., the machine paid for itself in cutting 34,000 feet, charged at 10 cents per foot for all of the work. This machine also did work for the Sewer Department, gas company and telephone company. The city of Thomasville, Ga., reports costs as low as 2¾ cents average for water ditch, and 4½ cents per foot for sewer ditch.

Costs per Cubic Yard

Converting lineal foot costs to costs per cubic yard gives interesting information. Some records of cross-country work show 5 cents per yard, but of course this is an extreme. Again, records show costs as high as $1.16 per

yard, but one might assume something was wrong here. After checking a large number of records and omitting from the summary those that were incomplete, the cost is about 25 cents per cubic yard for excavation.

Results Obtained

Whether users, in figuring the probable cost of work in advance, follow the percentages and unit costs outlined above more or less closely, is not known, but, certainly, reports indicate that in figuring the cost of jobs after completion of the work these users deviate quite markedly.

In the matter of interest, it is found that users are quite likely to figure 6, 7 or 8 per cent of the total purchase price; at least for the first year, instead of taking an average over the life of the machine and figuring 4 per cent on the purchase price.

The total overhead as reported by the various users shows very little variation, running from $10.30 per day to $12.20 per day, with the exception of one user who placed a heavy depreciation against a 70-day job. This makes the overhead total $19.16 per day.

Under the heading of operating expense, the results of four users agree very closely, varying from $7.16 to $8.09 per day. Two other users show $12.65 and $12.91 per day, and in one of these cases it is known that the high rate is due to the fact that the operator and helper were permitted to remain idle when the machine was not digging, or in case they were put on other work, their pay was still charged against the ditching job. The figures indicate that on city work the ditchers are idle about one-third of the time, waiting for the pipe-laying gang to catch up, or for other reasons not traceable to the machine, and some users state that under such conditions the operator and helper have definite jobs to which they return until the machine is again needed.

In one case the operating expense is shown as $20.80, which may be due largely to charging idle time of the operator and helper against the machine, and is also due to a rather excessive moving charge made up of the time of a truck and trailer moving the ditcher from one job to another.

In spite of these few discrepancies in the matter of figuring costs, it happens that in two of the three cases, the job showing the largest charges per day also shows the largest average distance dug per day, so that the costs per foot of trench are not far out of line. In fact, the job which shows $12.65 per day operating expense shows the lowest cost per foot, namely, 3.8 cents. The costs vary from this figure to 8.1 cents. This is a job averaging only 3 feet 8 inches deep, but the digging is described as very hard.

COST OF EXCAVATING SMALL DITCHES
MACHINE VERSUS HAND METHODS

	Location and Nature of Soil	Width of Trench	Depth of Trench	Total Job Footage	Total Cost	Trench Cost Per Ft.	Hand Wk. Cost Per Ft.	Saving Per Foot	Total Saving	Remarks
1	Streets, all kinds of soil..	12″	42″	46,231		.063				Average for three machines
2	Streets, all kinds of soil.....	12″	42″	176,076		.065				Gas Co.
3	Streets, very rocky.....	18″	44″	35,047		.081				Telephone
4		16″	48″	18,570		.051				
5	Streets and parkways, hard-pan and clay.....	18″	60″	100,000		.075				Water
6	Boulders, clay and sand.....	18″	48″	110,415		.038				
7	Hard-pan.....			39,000		.072				Water
8	In parking, no hard dirt.....	18″	42″	9,110	463.09	.05	.22	.17	1169.51	
9	" " " " "	18″	48″	356	28.34	.08	.23	.15	53.03	
10	" " " " "	18″	60″	325	20.14	.06	.32	.26	84.22	
11	" " " " "	18″	66″	200	18.89	.09	.38	.29	57.92	
12	" " " " "	18″	38″	1,553	109.52	.07	.26	.19	290.04	
13	Surfaced street, loam.....	18″	42″	2,451	104.28	.04	.19	.14	354.80	
14	Paved street, loam.....	18″	36″	104	8.68	.04	.16	.13	13.37	
15	Unsurfaced, hard dirt.....	18″	42″	2,850	222.32	.08	.20	.12	344.56	
16	" " "	18″	48″	424	25.14	.06	.19	.13	57.04	
17	Surfaced " "	18″	42″	1,229	139.11	.11	.19	.08	99.69	
18	" " "	18″	48″	233	29.86	.13	.32	.19	45.32	
19	" " "	18″	60″	100	14.55	.15	.34	.19	19.36	
20	" " "	18″	42″	4,261	459.32	.10	.27	.17	665.27	
21	Paved street " "	18″	36″	195	19.71	.10	.19	.09	18.06	
22	Surfaced, rocky soil.....	18″	42″	693	64.01	.09	.33	.24	160.99	
23	" hard dirt.....	18″	42″	209	24.66	.12	.32	.20	43.20	
24	Resurfaced, rocky soil.....	18″	42″	700	57.20	.08	.32	.24	169.88	
25	Paved street, hard dirt.....	18″	48″	363	28.94	.08	.22	.14	49.47	
26	" " "	18″	42″	424	37.83	.09	.32	.23	99.81	
27	In parking, no lawn, rocky soil..	18″	42″	164	12.70	.08	.32	.24	40.49	
28	In parking in lawn, rocky soil..	18″	48″	397	31.06	.08	.19	.11	44.03	
29	" " "	18″	42″	300	20.21	.07	.22	.15	44.73	
30	" " " " hard dirt...	18″	48″	231	22.35	.09	.21	.12	27.20	

A tabulation of costs is reproduced. While most organizations are willing to discuss these matters of costs with individuals and companies, some are not willing to have their costs broadcast, so that names are omitted.

ACKNOWLEDGMENT.—From a paper presented at the convention of the American Water Works Association in San Francisco, June, 1928.

Preserving Historic Landmarks and Natural Beauty

MR. J. RAMSAY MACDONALD recently visited America in order to retrace the route of a visit to New England made thiry years ago, when he could clearly "catch the spirit of the Pilgrim Fathers." But instead of finding again the old ghosts, he found new sign-posts. "Villages that have resisted the damaging hand of man, are rare," says A. Lawrence Kocher, Chairman of the Committee on Historic Monuments and Natural Resources, of the American Institute of Architects, in the *Journal* of the Institute.

Annapolis has not remained unchanged, yet it retains its wealth of pre-Revolution dwellings and some of its colonial charm. Several of its historic old houses are now on the market, and St. John's College, which dates back to the days of William and Mary, is trying to acquire these houses, including the Peggy Stewart residence, photographs of which are herewith shown as reproduced from the *Journal*. The acquisition would mean the reverent preservation of some of America's finest monuments.

The author simply states the case, following it with an appalling record of our fast-vanishing landmarks the country over, and then with a heartening review of activities—sporadic though they still are—looking to concerted action for the preservation o historic landmarks.

"The character of the rural countryside in America has become menaced by rapid change on account of extensive automobile travel," Mr. Kocher comments. "Rural villages and historic towns in many instances have been disfigured by the erection of new buildings, service stations, and roadside restaurants, that are quite out of keeping with the atmosphere of the invaded localities. Country lanes are being straightened, and converted into direct, concrete highways. Outside of towns and cities these highways have attracted nondescript buildings on either side, resulting in what is termed 'ribbon development.'"

WHEN THE ENGLISH PRECEPT HERE DESCRIBED HAS BECOME AMERICAN PRACTICE, THE DIGNIFIED BEAUTY OF FINE OLD HOUSES WILL BE PROTECTED FROM THE INSULT OF "GINGERBREAD DECORATION" SUCH AS DISFIGURES THE HISTORIC PEGGY STEWART HOUSE, AT ANNAPOLIS, MD.

EDITORIAL NOTE.—Mr. Kocher's splendid article offers a number of concrete suggestions and a set of "Principles of Restoration" which will be of great value to civic bodies everywhere. It appears in the March *Journal*. Address Octagon Building, Washington, D. C. 75 cents.

Office Records for Fire Prevention Bureaus

By HAROLD A. STONE
CHIEF ENGINEER, CALIFORNIA TAXPAYERS' ASSOCIATION

THE fire demon is fought not only with water and chemicals but also with pencil and paper. In fact, the latter two implements are just as important as any complicated piece of fire apparatus.

Records are needed for *control* of daily operations. They are also needed for *analysis* of fire prevention problems. In addition, the information which they contain is supporting material for the annual report to the city council and to taxpayers. Simple forms can be designed to do each of these three purposes.

Records can be divided into general classes, five in number. They are: (1) inspection cards; (2) notices; (3) permits and certificates of approval; (4) reports; (5) miscellaneous forms. Each class fulfills a definite object; not one can be omitted in adequate fire prevention work.

A good inspection card will list all of the minor hazards which are to be ferreted out by the routine fire inspector. It will be easy for him to underline each item on the card as he goes through a building, thus minimizing chances of overlooking an important item. Major hazards cannot be so easily listed upon a card as minor hazards. Minor hazards are, however, fairly well known and can be itemized. A few out of many are suggested: roof conditions, fire-doors, blocked fire-escapes, condition of fire-extinguishing equipment, open-flame devices, inflammables, general occupancy hazards, waste cans, sweepings, smoking, hazardous materials and occupancies existing contrary to law or without permits, etc.

From time to time the information shown upon the inspection cards can be tabulated for analysis. When this information is compared with the causes of fires occurring within the city, intelligent conclusions can be reached relative to the most important sources of trouble. Consequently, the fire preventor can better plan his work, directing attention to the more serious hazards.

If either unsatisfactory conditions or violations of the city fire laws are discovered, then a demand should be made upon the owner or occupant to correct the trouble. Some fire marshals make simply a verbal request, while others send either by personal delivery or by registered mail a written demand to make conditions safe. This written statement takes the form of a notice, and is to be preferred over a mere verbal request. A written notice leaves no doubt as to what is wrong and what is to be done to satisfy the demands of the fire prevention bureau. In addition, it provides the necessary information which can later on be classified and tabulated in the study of prevailing hazards. A verbal request for betterment does not allow for this important phase of the work. To provide for this, a carbon copy of the notice should always be made and retained by the department.

Another reason for a written notice is to provide the machinery for follow-up inspections to see if the hazardous conditions have been removed. Conditions as found upon reinspection can be jotted down on the carbon copy of the notice. By so doing, an immediate comparison can be made of former conditions with the present. If there is no success in removing the danger, then the notice bearing such a statement should go to the fire chief for more drastic action.

A city-wide control of hazardous devices as well as dangerous materials is essential for effective fire prevention work. This control cannot be obtained except by using adequate records in the form of permits and certificates of approval. When a written permit is demanded for all storage of inflammables over, say, 5 gallons, effective control of this source of danger will obtain and especially so when penalties are enforced for non-compliance. Similarly, permits for explosives, film storage and the like will be needed.

Machinery of a hazardous nature, such as boilers in tailor establishments, open-flame devices in factories, fuel-oil equipment, stage scenery, gas stoves, etc., can be controlled by demanding a certificate of approval certifying that the installation is proper for safety. Such a certificate of approval may take the form of a tag or label which can be seen by a routine inspector, thus telling him at once if the apparatus has previously passed the bureau's requirements.

Permanent record in either card or book form of all issued permits and certificates of approval should be kept. Many of the permits must be renewed at the expiration of a year, and knowledge of this should be always available by the bureau in the form of a continuous audit. This can be done by using card files and flags to mark certain groups of cards.

An annual report of fire prevention work is of prime importance, although monthly and semi-occasional statements can be used to advantage. These reports should satisfy three objectives: (1) summarization and history of the work during the period; (2) analysis of various phases of the local fire prevention problems; (3) education of the public. The information to put into these reports will be obtained from the three types of records previously discussed.

Fire Prevention Publicity Through the Annual Report

The ideal annual report is prepared, primarily, for public consumption. The average taxpayer in the average American municipality knows but little of the continuous fire prevention work in his city, principally because he is not appraised of it. Yet there is scarcely a more effective device than the annual report to bring the subject of fire prevention to the attention of the public. In it the financial and economic burden of losses can be shown to the citizens and placed squarely upon their shoulders

Fighting Fire with Paper

Records and reports that give tabulations and analyses of data about the local fire problem, are indispensable tools for any modern fire department. Furthermore, like any highly organized group of people, the department and its fire prevention bureau should have complete, continuous and up-to-the-minute information of all work in progress. A bureau without such records cannot render as efficient service as one that is so equipped.

The writer of the accompanying article is co-author with Gilbert E. Stecher of a recent booklet entitled "Organization and Operation of a Municipal Bureau of Fire Prevention," an excerpt from which appeared on page 161 of* THE AMERICAN CITY *for April, 1928.

if the report is carefully drafted. When the incidence of the total fire tax is shown, then it is a thick-headed fellow, indeed, who will not take notice.

It is recognized that the reports of fire prevention activities will be submitted to the mayor or city council in the first instance, yet to have this information die in their hands and not be published is folly indeed. Two ways of presenting the report to the public are suggested—by newspapers, and by printed booklets. Some fire chiefs adopt the former, thereby saving the cost of printing. The plan used in Fresno, Calif., has merit. Several pages in a Sunday edition of the local paper carry the annual report, written in popular style, and illustrated with photographs are used. Extra runs of this section of the paper are made and given to the fire prevention bureau for later distribution.

A few miscellaneous record forms incidental to the business will be required. Letterheads, cross-indexing cards, complaint slips, and blanks for financial transactions are commonly used. In addition, forms for reporting the cause and origin of each fire will be needed.

Simple yet accurate records are essential to carry on the business of fire prevention, regardless of the agency responsible. If they are not designed and interrelated to obtain *control* of the work, then their most important purpose falls short. Without complete control, fire prevention work will be topsy-turvy and hit-and-miss. Suitable records and forms are a boon to any city administration that is engaged in fire prevention work.

How One City Enforces Its City Plan

THE relationship of the functions and powers of the city planning commission to the legislative, executive and administrative departments of city government was discussed by Alfred Bettman, of Cincinnati, at the National Conference on City Planning, in Dallas, Texas, last month. As a practical example of the concrete workings of the principles outlined, the author gave the following description of what has happened in Cincinnati during the last three years:

The Cincinnati city plan was adopted in 1925, and since that time there has been in force the requirement that the location and extent of all new or additional public improvements shall be submitted to the planning commission and that at least a two-thirds vote of council is necessary for the overruling of the Commission's disapproval. The Planning Commission consists of seven members, of whom one is selected by the City Council from its own membership and another is the City Manager. The Planning Commission meets every week, its sessions usually being about two hours in duration. There are special meetings and some field work. Lack of a quorum is almost unknown.

Every week there is a calendar containing from six to fifteen items, falling predominantly in three classes of problems, namely, zoning amendments, subdivision plats, and public improvements. The submission of these matters involves no delay. An ordinance, as, for instance, the first measure determining a street construction, is the one submitted and this takes place long before Council itself has reached the stage of actually passing the necessary legislation for construction and financing, so that construction and financing are never delayed. In the case of ordinances accepting streets laid out by private subdividers, they receive their first reading in Council, are then referred to the Planning Commission, which passes on them in time for Council's next meeting. Of course, this speed is possible only where there is no controversy; but that is usually the case.

In zoning amendments, there has never arisen one case in which the opinion of the Planning Commission was overruled or received an adverse vote of even a majority of the Council. In only one case dealing with subdividers' streets has the Council overruled the Planning Commission. That is all that has occurred in the way of difference of opinion between Council and Commission, although many zone map amendments, street vacations, acceptances of street dedications, establishment of street and roadway widths, and street realignments have been submitted. Many of these items were initiated by or recommended in advance by the Planning Commission. The legal necessity of submission to the Planning Commission has undoubtedly operated to prevent some proposed departures from the city plan from coming to a head. Everything has run smoothly and promptly, while at the same time the city plan has been carefully protected.

There has been one controversy of a somewhat strenuous nature between the Planning Commission and the County Commissioners, who were proposing to build an enlarged viaduct which constituted part of a street, which street had been designated by the state highway department as a state highway. The difference of opinion related to both length and width of the proposed viaduct. The statute required the City Council's consent to the county's plan, and the City Council submitted it to the City Planning Commission, which refused to approve the proposed relocation of the viaduct. Thereupon Council voted upon the question, with the result that a majority consented to the county's plan but more than one-third adhered to the Planning Commission's disapproval. Then a suit was filed in the Supreme Court of Ohio, which finally held that the city planning law did not govern this viaduct, basing the decision upon the principle that a state highway is exempt from city planning control or regulation. This decision presents a legislative problem of great significance to city planning, which may be broadly stated: Shall structures built within the city by non-municipal governmental agencies (county, district, state, federal) be subject to the same degree of regulation by the city planning authority as those built by the city itself, and, if not, how shall the adjustment and coordination between these structures be brought about; this coordination and adjustment being obviously a planning problem and necessary for the orderly and efficient development of the territory of the city?

A planning body may not always fully realize the planning function or successfully resist the pressure to devote its energies to immediate projects of the city administration and may let itself drift into being an arm of the administration rather than an independent planning organ. In the long run, good city administration cannot be maintained unless the planning function has been performed and is being performed by some such methods and relationships as have been described in this paper, the full text of which is obtainable from the National Conference on City Planning, 130 East 22d St., New York.

Regional Planners Urge New York to Provide Promptly and Adequately for Aviation

PROMPT acquisition of ample areas "for all possible purposes in connection with air transportation" in New York City proper and in the area within a fifty-mile radius of New York is advocated in the final report on Transit and Transportation, one of the series now being published by the Regional Plan of New York and Its Environs.

The report stresses the importance not only of an early selection of airport sites, but of insuring rapid transportation between those sites and the important business and residence sections of New York and other large cities in the Region.

"The urgent thing is to acquire ample areas for all possible purposes in connection with air transportation. Unless the city gets such land soon, the expense of acquiring it and clearing it of buildings likely to be erected in neighborhoods adaptable for landing fields will be far greater than such expenses would be at present. Costs for development could be deferred until actual needs arise.

"Looking forward thirty or forty years, one may anticipate that it will become impracticable to acquire the necessary landing fields for aviation unless a location plan is prepared now and definite areas set aside for such use. Whatever may be said about aviation, it may be assumed as a certainty that it is going to develop further as a system of transportation. One cannot tell precisely what directions this development will take, and therefore more ample provision should be made than existing conditions warrant. Unfortunately, the tendency is to wait and see what happens."

The House That Moorestown Built

By VIRGINIA YEAMAN

THE house that Moorestown built holds an old garden within the embrace of its low, warm-hued brick walls; and all the garden paths are bordered with box a century old and more. The thick hedge of box which runs along one side of the garden is splendidly old and alive, as is the great white oak tree which guards the entrance—this last a relic of the forest which once possessed the land.

After the forest came a fine old estate; and after the estate the house that Moorestown built about the garden. The grapevine and the yellow-rose bushes are also heritages from the long ago; and the house itself, keeping close to Mother Earth, many-gabled and mellow in tone, is in harmony with the atmosphere the garden creates. More than this—it suggests a home rather than a Community House.

And a home it is; that is the secret of its individual charm and flavor. It is a home for the whole community, gathering beneath its roof the various recreational and social activities of the neighborhood, and giving a local habitation to a number of different community organizations. This atmosphere of home was neither accidental nor an afterthought: it was an integral part of the original plan. For when Eldridge R. Johnson was asked, about four years ago, whether he would like to help this New Jersey town of 4,000 people build itself a Community House, he answered that he would if children were included as part of its family life. Without children there could be a Community House, but without children there could be no genuine Community *Home*.

The Gift Which Made the Building Possible

This initial understanding heartily entered upon, Mr. Johnson agreed to give $175,000 for the ground and building, $25,000 for a pipe organ, and $5,000 toward a maintenance fund, if Moorestown would itself raise a sum sufficient to assure the maintenance of a community center—which Moorestown proceeded to do with breath-taking promptitude. It secured pledges for $110,000, and the dream became a reality.

Also, from the beginning it was planned to bring together, under this home roof, as many of the township organizations as cared to become parts of the family unit. The library had been housed in the private school; its request for quarters in the new center was honored by having a beautiful library, with a children's alcove and space for 10,000 volumes, made a part of the architect's plan. In like manner, a complete apartment was arranged on the second floor for the two nurses employed by the Visiting Nurses' Organization, and the Church Federation was also given its own suite of rooms. These are the three organizations which have quarters especially provided for them. There is a Clinic Room for the use of the nurses, where children are brought for examination, and where pre-natal care is given.

THE COMMUNITY HOUSE OF MOORESTOWN, N. J.

A Real Community Center

There are, however, twenty other organizations which make this Community Home theirs for all essential activities. At each end of the second floor are two club rooms which can be had upon application, and in the basement is a great lounge and smoking-room for men. A mammoth fireplace distinguishes this masculine retreat, and no decorator has been allowed to intrude upon its vigorous simplicity.

In the living-room harmonious colors and forms delight the eye. Despite its generous proportions, an air of what the English call "homeliness" pervades it; for the garden contributes masses of fragrant beauty, couches and chairs are disposed for either sociable intercourse or quiet rest, the light is filtered through soft-hued hangings. Mrs. Johnson gave the furnishings throughout the house, and they are designed in perfect harmony with the architecture, which is Old English.

For large assemblies the gymnasium is the principal gathering-place. At one

GARDEN OF THE MOORESTOWN COMMUNITY HOUSE

THE BOX-BORDERED GARDEN PATHS TO THE SOUTH OF THE MOORESTOWN COMMUNITY HOUSE

end is a stage, with dressing-rooms at either side, and the floor is kept in precisely that condition demanded by dancing sons and daughters—who are invited to use it every other Saturday evening, when a chaperone is present. The Community House has a teacher for esthetic and social dancing, and those who wish to discard surplus weight. In this room, also, is one of the few auditorium orthophonic victrolas now in use. It was given to the Community House, last Christmas, by Mr. Johnson in his wife's name.

Among the societies and organizations which use this Community Home are the Y. M. C. A. and the Y. W. C. A., the Boy and Girl Scouts, the Rotary, the public schools and the private school,—the schools use especially the swimming pool and the gymnasium,—the Women's Club and the Garden Club, the Community Players and the Music Club. Twenty-three organizations in all center their activities here, and help to maintain the Community Home by renting its club room and other rooms for their meetings.

Management and Maintenance

The Moorestown Community House management is under the direction of the Recreation Commission of Moorestown Township, by request of the Board of Trustees of the Community House. Thus this town center falls under the same management as the parks and playgrounds, and the results of this arrangement have been most happy. The Director of the Community House is also Director of Parks and Playgrounds, and of General Recreational Activities. Three school playgrounds have recently been turned over to the Director, and an athletic field and the Water-Works Park are also used by him in the program laid out. Thus a most successful cooperative plan is carried out in the management of the Community House.

The maintenance fund comes, of course, principally from the original $110,000 raised by the town and contributed by 1,500 individuals; the room rentals, which are kept as low as possible, and entertainments, provide an additional income. While a small charge is made for the use of the swimming pool, it is not self-supporting. The suits are provided by the Community Center, and the water is under the constant supervision of the Board of Health.

Other Interesting Activities

One of the most popular of the Home activities is the Saturday morning story hour, conducted by the librarian, and enthusiastically attended by the children of this town family. Another highly successful project is the outdoor Quoit Club, which is adorned with this legend:

"Where Friend Meets Friend
Barnyard Golf
Moorestown Quoit Club"

One elderly man, who had declared he would leave the town because he had made no acquaintances, has announced, since he became a member of this Club, that he would not live anywhere else under any consideration whatsoever.

Other out-of-door projects are under construction. One of these is an open-air theater, charmingly arranged, where a gentle rise slopes down to a level space. Another is a bowling-green, for which a level stretch of greensward is provided, and yet another consists of two tennis courts, for which the young people are impatiently waiting. And all this after only about two years of life!

There are a number of other activities which enliven this exceedingly lively Community Home, one of the most appealing of which is the project of the Garden Club in caring for the old garden about which the house is built. This is a labor of love, and its reward is a place of such charm and rare, old-time atmosphere as lingers hauntingly in the memory. "Moorestown," writes the Director in his report for 1927, "is attempting to progress along the line of life suggested by Theodore Roosevelt when he said:

"'So build your community, that quickened conscience, larger vision, deeper devotion and equality of rights for all men will resolve into an enthusiastic zeal for personal service in the Community. All who give service are Torch Bearers.'"

Fire Chiefs' Committee Recommends Surveys for Grading Cities

AT the convention of the Ohio Fire Chiefs' Association, held at Marion, Ohio, in June, a committee consisting of Chief Joseph H. Speddy, of Lakewood, Chairman; Assistant Chief James E. Granger; and Chief Thomas M. McFarland, of Marion, rendered a report on the grading of cities from a fire protection standpoint. The committee considers it essential that a grading schedule "be maintained in order to place each municipality in the grade to which it properly belongs in absolute fairness to all"; and that cities where surveys have never been made, or have not been made recently, should arrange with the National Board of Fire Underwriters for a survey and grading. The committee report continues:

"After the survey and recommendations are made, it is suggested that each individual fire chief make every possible effort to have his city officials and civic organizations get behind these recommendations and follow them up consistently until they are completed.

"The days of the horse-drawn apparatus and the fire-fighting methods of that time are gone forever. An evolution has taken place in fire departments just the same as in other lines of business.

"Motor apparatus, modern appliances and the more scientific methods of fire prevention and fire extinguishment of today demand greater efficiency upon the fire chief of the present day.

"The present-day fire chief who is keenly alive to this situation will not have much difficulty in securing the support of the citizens of his community.

"If this be done, there is not any question but that you will find that the National Board of Fire Underwriters and the Ohio Inspection Bureau will give you every credit to which you are justly entitled."

Pros and Cons of the City Manager Plan

THERE are five general systems of administration provided in the different types of city government organization:

1. Administration by council committees. Few people would advocate a return to this early American scheme, although it functions well in England.

2. Administration by a commission. The members of the legislative body act also as heads of departments. Popular early in the century, the plan is now being discarded as theoretically and practically unsound.

3. Administration by a mayor responsible for certain departments, numerous others being supervised by elected officials or appointees of council,—known as the "weak-mayor" type.

4. Administration by a "strong mayor," as we have it in Detroit, the mayor being responsible for almost all administration.

5. Administration by city manager, who in Detroit would assume relatively the same administrative duties as our present mayor now has.

Advantages of City Manager Plan

In comparing our present system in Detroit with the city manager plan, the principal advantages of the latter are:

1. There is a distinct separation between policy determination and the carrying out of policies. The first is performed by the legislative body representing the people; the latter by a trained administrator and subordinates presumably selected for executive ability and knowledge of municipal affairs. It is almost axiomatic in government that this separation of authority and method of selection should take place.

2. The plan requires the appointment by the council, representing the people, of a chief administrative officer who presumably would be selected for ability and training, and who would hold office as long as his performance was satisfactory. Under these circumstances the same conditions would apply to his principal subordinates, appointed by and responsible to him.

Under our present system in Detroit, the chief administrative officer is elected every two years, and his qualifications are political rather than executive. He may know nothing at all of the details of municipal administration when he takes office, and in some instances, may never learn. Often his conduct with respect to administration is influenced by his desire to be again chosen to that position, and appointments and expenditures are made to secure political support rather than for efficiency and economy. There is a distinct advantage if the chief administrator can be chosen initially for competency, and if his conduct in office need not be motivated by political considerations.

Aside from this element of politics the issue of permanency is highly important. The private business having assets of nearly a billion dollars, and spending nearly two hundred million dollars a year, would not expect results if it changed its manager and department heads every two or three years. . . .

The principle embodied in city manager organization, i.e., that of centralizing administrative authority in a trained administrator appointed for the purpose, has been carried out in our school system both in Detroit and in most other cities of the United States for nearly two generations. I think we must agree that the school systems are on a higher plane of efficiency than are the other branches of the government, leaving out of consideration the debatable question as to whether their budgets are disproportionately large, which may in part be laid to the willingness of the public to spend money for educational purposes because it believes it is well expended for a desirable activity.

3. As a corollary, the semi-permanent appointment of a manager has a tendency to insure the appointment of responsible subordinate officials based on professional qualifications rather than on political strength, to insure their continuance in office so long as they proficiently perform their work, and to shield them from political pressure. . . .

It is important that these department heads be under no political suzerainty, and their chances of being so are small when they are responsible to a professional manager, in turn responsible to a numerous city council. So long as they are responsible to a mayor subject to election every few years, it is only human nature that they will be interested in politics, and in seeing that their employees are interested. . . . With the police group the matter of "protection" to certain elements, and payment for that protection, may also be made a political issue.

4. This plan would unquestionably give the city manager more time for administrative supervision than the present plan gives the mayor.

Our present mayor is not only responsible for administration, but must give time to the advocacy of legislation and policies; be the ceremonial head of the government—making addresses of welcome, laying cornerstones, receiving more or less distinguished visitors to the city, etc., etc. I question whether any recent mayor has given over one-fourth of his time to administration, which means that the departments are largely autonomous, and their activities are uncorrelated. Under the city manager plan, these ceremonial and political duties would be delegated or relegated as you please, to the elected mayor, leaving the manager free to carry on the current service functions of the municipality.

5. Independent of the principle of city manager government, a shift to that type of organization would readily permit the abolition of certain boards now responsible for overhead or indirect functions of the government. It should be a well-established principle in government that services rendered to the government itself and not to the citizens should be directed along lines of immediate responsibility to the chief administrator. . . . With respect to civil service, it is obvious that unless the personnel of the different executive departments is controlled, (i.e., selected, rated, promoted, and discharged) in an able manner, little real efficiency may be expected. The great strides that have been made in recent years in the science of personnel management make it particularly desirable to revamp the existing organization and procedure in this field.

Disadvantages

Now as to arguments against the city manager plan.

1. It may be stated that entirely qualified city managers are not available. This is in a literal sense true, and in

Cities of a Million and of a Thousand

Starting with cities of moderate size, the city manager plan of municipal government has spread in both directions as to population, having been adopted by some 359 cities in the United States ranging in size from a few hundreds to almost a million.

One of the cities where the plan is being discussed with regard to the desirability of its adoption, is Detroit, Mich. The Board of Commerce of that city of over a million people recently requested the Detroit Bureau of Governmental Research to present the arguments for and against the city manager plan, with special reference to Detroit, and an interesting report on the subject was made by Dr. Lent D. Upson, Director of the Bureau. As it is of more than local significance and value, the report is given herewith, omitting some portions that apply specially to the Detroit situation, rather than generally.

this sense the analogy of the city manager to the superintendent of schools is in error. Educational work comprises related activities dealing with one general subject. Municipal government has to do with many diversified activities ranging from assessing, through clinics and sewers to zoos. No man can be an expert in all of the things a city does. Here, too, the analogy of the city manager to the manager in private business does not hold good except perhaps with reference to corporations with as varied interests as General Motors or Ford.

The best that a city manager can be is a good executive with a broad general knowledge of all phases of municipal work. The carrying-out of detail must be left to subordinates trained in the activities of the particular departments for which they are responsible. *The manager must know how to test results, not how to carry out the details of operation.*

2. So it is advanced that even were a trained manager employed, the affairs of the city would be too multifarious for a single man to administer.

Perhaps, but the situation is not unremediable. A city must be so organized that competent subordinates are in charge of principal activities. The number of these subordinates should be sufficient so that a chief executive can place himself in immediate contact with all principal developments. But they should not be so numerous that the manager is swamped by unnecessary detail. This reasonably precise adjustment of the number of subordinates reporting to the chief executive has been largely ignored in all types of city organizations, and this is an appropriate criticism of the strong-mayor type of government that we have in Detroit. . . .

City manager charters have usually ignored the question of administrative assistants. This is probably because city manager government originated in, and has been very popular for, smaller cities. In these smaller communities the city manager is not only the manager, but frequently serves as the head of one or more important city departments, particularly public works and engineering. Even in medium-sized cities there is no great need for an assistant to the city manager except to serve as a deputy in his absence. In the larger cities, such as Cleveland and Cincinnati, I feel that it has been an error not to have provided one or more assistants for the manager, and I believe that this step must eventually be taken. You know in school management, although the analogy is not exact, the superintendent is always supported, as is the case in Detroit, by one or more assistants each in charge of a particular branch of the educational project.

3. The manager may endanger the success of the city manager plan of government by assuming political leadership, an improper interpretation of his function and a usurpation of powers properly vested in the city council.

For example, it is reported that Manager Hopkins of Cleveland considers himself not only the advisor of the city council but insists on standing before the public as the chief promoter of policies. This position is made possible by his dominating personality plus the political backing of his party. When things go wrong in Cleveland, such a manager must take the responsibility, and sooner or later things will go wrong. As a result of this dominance, public indignation may assail the type of government, rather than allocate the blame for mistakes in policy to the legislative body and for failure in execution, to the city manager.

Cincinnati is said to present the antithesis of this situation. In that city the policies are determined by the council, subject of course to the technical advice of the manager. The manager insists, however, that he will not be the motivating force behind public policies. In consequence, as regards the determination of policy, public attention is centered upon the council and looks only to the administrator for efficient management.

The wisdom of separating political leadership from executive management is apparent. The carrying-out of any policy always creates an opposition minority. If sufficient policies are carried through these opposition minorities pyramid into an opposition majority. This means that the continuance in office of any policy-determining body over a long period of time cannot be anticipated. If continuity of administration is to be secured, which is so very desirable, it is absolutely essential that dissatisfaction with policy be centered upon the elective portion of the government rather than on the appointive administrative part.

4. Correlative to the usurpation by the manager of political leadership is the subordination of the position of mayor in many city manager charters.

In many cases the importance of able political leadership has not been recognized. The city is a political institution and will doubtless continue so. The public expects, and I think must have, leadership for the formulation of policies, prior to their determination. If that leadership does not exist, council washes from one side of the basin to the other with too little, too much, or no consideration of public questions. . . .

This leadership must be supplied. If it is not supplied from the council, the public will force the manager into that position. In some instances, however, although not provided by charter, some strong man in the city council has become a natural leader. For example, Murray Seasongood in Cincinnati has naturally assumed the position of leader because of his long and continued opposition to gang politics.

I believe that the situation could be remedied by enlarging the powers of the mayor and requiring that he be elected separately from the rest of the council. For example, he might be made the president of council with both veto power and a vote. . . . It would seem that policy conflicts should be threshed out in the council and that this would take place much more satisfactorily if the mayor were president of that body. Also, of course, under this arrangement, fewer differences would arise.

This suggestion, however, does not meet the approval of all authorities in government. Prof. Thomas H. Reed, of Ann Arbor, who was formerly the City Manager of San Jose, Calif., insists that such a mayor may start dictating to the manager and thus reduce the latter's authority. I do not think this would eventuate with a properly drafted charter.

5. It will be argued with some justice that council may not appoint a competent man as manager.

There are numerous examples to support this contention. When a city is torn by conflicting political emotions and political lines are harshly drawn, the inevitable result is the appointment of a politician as a city manager, who frankly looks upon his position as a means of strengthening the power of his political faction.

The appointment of the manager in Cleveland may have been dictated by the political powers, although in many respects the appointee has made an admirable manager. In Kansas City, Mo., the council continues as a bi-partisan body and a politically minded man has been selected as the city manager. I am under the impression that the change of plan of government in that city has not done all its exponents expected. In a number of smaller cities the city managers have changed with the commission elections. . . .

6. It may also be pointed out that the introduction of a professional administrator might cause an upheaval in the city government by changing personnel long in office and functioning well.

This, again, would depend upon the character of the city and the influence of public opinion. On the whole, managers have not cleaned house too much. Some of them have done too little of it.

7. The objection may be made that autocratic authority is given the manager.

In many cities the adoption of the plan —for instance in cities of the "weak-mayor type"—means that there is usually an increase of administrative authority placed with the manager—a much-desired end. . . . An unsatisfactory manager could, however, be dismissed instanter by the elected representatives of the people.

8. City manager government does not always result in lower city expenses.

Economies in operating city departments almost always follow. On the other hand, the public proceeds to demand and pay for additional services as soon as they have an administration they can trust. Under its old plan of government, Cincinnati had the lowest tax rate of the large cities of Ohio, and Ohio large cities had the lowest average tax rate of the cities of America. The voters of Cincinnati consistently refused to vote the party in power additional taxes or bonds. Under the city manager, new taxes have been voted and large bond issues for public improvements approved. The same was true of Dayton, Ohio.

If the public does not want services extended under the city manager plan, they can secure existing services, more effi-

ciently performed, and for less money.

9. There is usually some objection to the compensation paid to city managers, particularly from small taxpayers and citizens accustomed to modest incomes.

The rates paid in the larger cities are appended to the data appearing subsequently. You will note that they range from $8,000 to $25,000. When compared with the salaries paid in industries of similar magnitude, this criticism is not pertinent.

10. It may be said that the plan is yet experimental.

The first real trial in America was in Dayton, Ohio, beginning in 1914. I knew the government of Dayton, intimately before and after the change, and the improvement in the character of the government has been marked. Spasmodic efforts have been made to go back to the old form, all of them defeated decidedly. The new plan is now thoroughly established.

Since that time the plan has been adopted in more than 350 cities, of which the largest are shown below.

There are a number of minor arguments brought against the city manager plan, such as that it is undemocratic, un-American, Germanic in origin, etc., etc. I do not think these sufficiently important to be discussed at length.

City	Population	Salary	Date
Cleveland	769,841	$25,000	Jan., 1924
Cincinnati	401,247	25,000	Jan., 1926
Indianapolis	367,000		Jan., 1930
Kansas City	324,000	15,000	Apr., 1926
Rochester	295,700	20,000	Jan., 1928
Norfolk	157,080	12,000	Sept., 1918
Dayton	152,599	9,600	Jan., 1914
Grand Rapids	137,634	8,000	May, 1917
Miami	131,000	12,000	July, 1921
Tampa	130,000	7,500	Jan., 1921
Fort Worth	106,482	15,000	April, 1925

A Water Department Shop and Garage

By J. W. GRAHAM

General Manager, Portland Water District, Portland, Maine

THE plans for the new shop and garage of the Portland Water District, to be located on an extension of Douglass Street, resemble an artist's conception of a proposed sedate country club. The new building is to take the place of the present plant on Seneca Street and will be built on three acres of ground purchased last year for this purpose. It is expected that the work will be completed by the fall of 1928.

In searching for plans suitable for the new plant, the trustees sought chiefly for beauty in order that no adjoining or neighboring property should suffer depreciation. Officials of the districts visited plants of other cities and gathered all available information before deciding on the type of Portland's new shop.

The building, which was designed by John Calvin Stevens, architect, will be a low, rambling structure, 350 feet in length, and will be built of brick with cement foundation and floors. The artistic sloping roof will be of fireproof construction and will be supported by steel trusses. The front of the building will be set back from the street and will have wings on either end extending diagonally toward the street. The triangular plot of land between the building and Brighton Avenue will be made into a park.

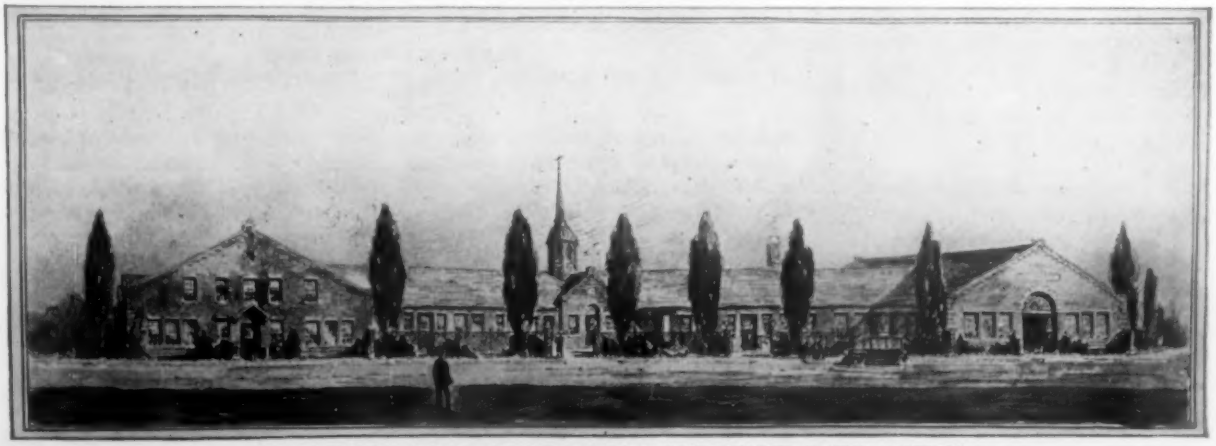
The wing of the building nearest to Brighton Avenue, measuring 50 x 60 feet, will be two stories in height, with the superintendent's office, the stockroom, toilets and working space on the first floor, and emergency sleeping quarters, locker-rooms and employees' rest rooms on the second.

The other building will be the garage. The main portion of the building will house the blacksmith shop, pipe-lining department, storage rooms, meter-testing and repair facilities. The garage will be 60 by 100 feet and will have a wing for automobile repairs.

The tracks of the Maine Central Railroad pass at the rear of the new shops, and a side track will be built, allowing gasoline, coal, pipe and other supplies to be handled economically. Ample space for the storage of cast iron pipe and supplies has been planned alongside the proposed railroad spur.

The new shops will be a distinct departure from buildings of this nature and will be an asset rather than a detriment to the neighborhood. No manufacturing will be done there, so that no offensive odors or noises will disturb residents. The trustees desire to make the plant attractive, and they give the assurance that everything will be done to make this possible.

Ordinarily, a crew of 30 men, including service men, emergency men and garage men, will be regularly employed at the new plant. This number, however, is usually increased much in summer.



SKETCH OF THE NEW SHOPS OF THE PORTLAND, MAINE, WATER DISTRICT

Efficient Light Direction in Street-Lighting Installation at Fort Worth

By C. A. WINDER
SUPERVISOR OF PUBLIC UTILITIES, FORT WORTH, TEXAS

EARLY in the history of this republic people found that the day was not long enough in which to carry out all of their business, and more and more traffic continued into the dark hours. In order to minimize the hazard of night travel, it became the practice of people living along streets in which traffic continued at night, to place lanterns in the front windows. About this time Benjamin Franklin conceived the idea that such a procedure was inefficient, in that a very small proportion of the light from the lanterns found its way out on the streets for a useful purpose; and he made what was then a radical suggestion in the way of street illumination. He suggested the placing of the lantern on a post along the curb of the street, thus utilizing a very much larger proportion of the light of the lantern. From his day until the present there has been little improvement in the location of street lights; but today another radical suggestion in this regard is being tried in order to obtain the necessary efficiencies that must prevail before we have an economical illumination of our highways.

CENTRALLY MOUNTED STREET LAMPS ON CAMP BOWIE BOULEVARD, FORT WORTH, TEXAS

Efficiency and Direction

Recent developments in spectacular lighting, which have been classified by the public as white way lighting, have decreased in efficiency instead of increasing in efficiency. It has been the custom to have a single unit standard at the side of the street, half of whose light is turned upon the highway and the other half upon the buildings, but the modern tendency has been to use two lights to a standard with a still greater reduction in efficiency over the single-light standard.

To obtain the maximum economy for a given illumination on any highway, it must be self-evident that the unit projecting this light should be in the center of the highway, because it is obvious that light is thrown in all directions almost spherically from the illuminating source. Many efforts have been made to re-direct the light from these spherical sources so as to throw the light upon the street. These methods have had variable success. Any scheme which involves the break-up and re-direction of light involves considerable absorption.

Where efficiency is of prime importance, about the only success in re-direction of light is in the use of reflectors. But other factors have entered into the problem, so that up to the present the reflector has not been much used for re-direction of light for highway lighting. This fact, however, is no reason why it cannot be so used.

THE SAME VIEW AT NIGHT
The roadway is well illuminated, but the glare from the lamps is minimized by diagonal refraction

Central Mounting on Highways

Another factor that has kept us from using a light source in the center of our highways has been that such construction has not always been feasible with the type of highways that we have built. Where we have two-way traffic on a single highway, it has been difficult to evolve any scheme of central illumination. But modern highway construction is rapidly turning to the one-way type of road, either with a central parkway or a center concrete obstruction that will keep the traffic in both directions definitely separated. This type of construction lends itself admirably to the increased speed of traffic with which we are confronted today. When we obtain this type of highway construction, we shall gain much in our ability to keep traffic speeded up with reduced hazards and shall be able to illuminate our highways to a point where headlights can be so reduced as to be a negligible factor in night driving.

The greatest drawback to our present desire to increase the speed of traffic over our highways is the glaring headlight. It is the greatest source of accident on the highways. The only safe means of eliminating this tremendous hazard is by the proper method of illumination. A recent example of an ideal

system of handling traffic over an arterial highway properly illuminated exists in the new, modern boulevard just completed in Fort Worth, Texas, known as the Camp Bowie Boulevard. I say properly, in that it is so well illuminated that headlights are absolutely unnecessary and are not used at nights on this highway.

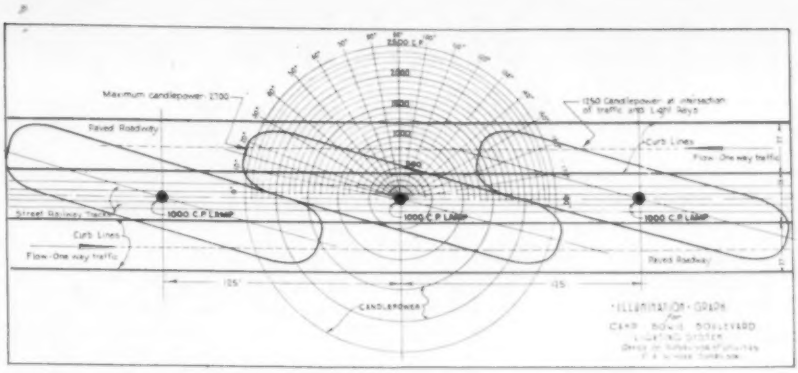
Camp Bowie Boulevard is 80 feet from curb to curb, having two 27-foot one-way roadways on each side with a 26-foot center section in which is located the street railway and the lighting system. This lighting system consists of very large units, 48 inches high and known as the Giant Paragon units, built by the Westinghouse Electric & Manufacturing Co. and illuminated by one 1,000-candlepower incandescent lamp.

Refraction Diagonally Across the Roadway

In order to reduce the intrinsic brilliancy of this unit in the line of vision of the driver, a refractor, mounted around the incandescent lamp, re-directs the rays of light so as to throw a large percentage of the light forward in the line of traffic. This automatically reduces the illumination on the side of the fixture or lighting unit that is in the line of vision of the driver, and puts the high intensity at his back. This works both ways, so that the one-way traffic going west always gets the high-intensity illumination at its back, as does the traffic going east. A better idea of this, perhaps, can be obtained from the graph shown herewith. This shows the redirection of the light by the refractor and how we obtain in a proper position candlepowers up to 2,700 from a 1,000 cp. lamp and reduce the glare at the point where it is most desirable to have a low brilliancy.

Cooperating in Use of Poles

The accompanying photograph also shows how the proper location was obtained, and the cost of this illuminating system was kept down, by developing a joint pole construction with the street-railway company. Here a single three-section steel pole was used to support the arms which hold the trolley wires and also to support the lighting unit at the proper elevation, which, in this case, is 24 feet from the road level. In conjunction with the engineers of the Northern Texas Traction Co., of Fort Worth, a design for trolley construction was worked out which absorbs all of the vibration of the passing trolley. Vibration in the past has caused high maintenance on lighting units mounted on existing trolley-wire suspension poles. But by this method used in this construction, all such vibration has been eliminated and there has been no lamp breakage or glass breakage due to trolley vibration.



GRAPH INDICATING THE DIAGONAL DIRECTING OF LIGHT INTENSITY ACROSS THE ROADWAYS OF CAMP BOWIE BOULEVARD, FORT WORTH

With this type of equipment we have been able to illuminate the 80-foot boulevard to such a brilliancy that a newspaper can be read at any spot upon the street from one end to the other, with as much ease as it can in any home library, with a power consumption of slightly less than 4 watts per running foot of street, which is the highest economy we have been able to find.

This is a radical departure in design from the accepted standards in illumination. But it is only by the use of radical departures that we shall obtain high illuminating intensities on our highways with a minimum of first cost and a minimum maintenance expense. This system was installed by the city of Fort Worth at a cost of less than $1.50 per running foot of highway.

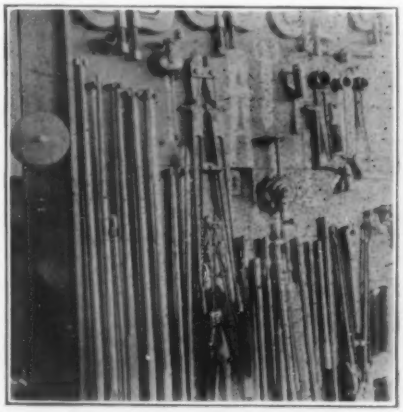
Improving Industrial Zoning

INASMUCH as zoning is an exercise of the police power, its sanction derives from the purpose of promoting the health, safety, morals or general welfare of the community. R. D. McLaurin, Commissioner of Trade Waste of the city of Cleveland, in an article somewhat pessimistically entitled "Where Zoning Fails," in the May *National Municipal Review*, maintains that the mere segregation of industries away from residences is an inadequate treatment of the matter of industrial use as a subdivision of zoning, and does not sufficiently comply with the police power purposes mentioned. He suggests that segregation of industries does not in itself meet the problem of nuisances, and may tend to give a feeling of laxity in this respect on the part of manufacturers; and that therefore zoning legislation should tie up with the control of nuisances, thus bringing it still more within the province of the police power. He recommends that industries be required to take out permits conditioned on employment of the best practical known means for the abatement of dusts, fumes, odors, noxious gases, or water-carried offensive wastes; and asserts that the industries will thus be helped rather than harmed.

Keeping Tools in Place in Fire Department Machine Shop

A GREAT deal of time is lost in many machine shops through the misplacement of tools. Even when a tool rack is used, and every man is required to replace tools used, they are continually getting in the wrong place, by mistake or carelessness.

Keeping tools in their proper place is simplified at the machine shop of the Denver Fire Department by the use of tool racks like that shown here. This one is seven by eight feet, and holds about a hundred tools of various kinds. It is made of lumber and is set against the wall of the shop, with a slight backward slope. It is painted a dark green, and the position of each tool is indicated at a glance, by painting the outline of the tool itself upon the board with aluminum paint. There is a strip of wood at the bottom of the section reserved for crowbars, which has a notch for each bar, holding it firmly at the bottom. Spring clamps hold the bars in place near the top. Other tools are hung on hooks, arranged to suit the shape of the tool.



JOSEPH C. COYLE.

Buffalo Municipal Airport Planned for Safety and Convenience

By JAMES P. MOORE

COMMISSIONER OF PARKS AND PUBLIC BUILDINGS, BUFFALO, N. Y.

THE 518-acre airport that now serves Buffalo, N. Y., is the result of efforts of air-minded citizens who, for almost a decade, have agreed that this city should make a bid for the world position in aviation that it held during the war. With four large factories building aircraft and aircraft parts, with the leading parachute manufacturer in the world, with water and rail transportation, nearness to raw materials, and a location within four hours' flight of two-thirds of the population of the United States and Canada—seemingly all that Buffalo lacked was adequate landing facilities. An intensive educational campaign was launched in 1926, the year before Lindbergh's famous flight aroused people generally to the possibilities of aviation. In this first step toward obtaining an airport the Chamber of Commerce, Aero Club, and other civic organizations, newspapers, and many public-spirited citizens took active part. Many airport sites were offered to the city, and after a series of inspections the present site was chosen as the best available. It is situated on high ground eight miles, or about twenty minutes by automobile, from the center of Buffalo's business district.

The Plan

After the airport site was conclusively agreed upon, a plan covering the complete development of the field was worked out. The plan, as evolved by a committee of several men, not only provided for the requirements of the present, but anticipated the probable needs of the future.

The planners knew that the progress of aviation was by leaps and bounds. They also had observed the plight of fields built for needs of the moment and now forced to resort to makeshift expedients to provide modern service. An effort was therefore made to get a fair picture of what could be looked for during the next twenty or thirty years in aviation. With this forecast as a basis, plans were drawn up for a field which would meet the ultimate needs. Certain essential elements of this plan were then selected for immediate construction, the remainder to be added as the need arises. In this way a field was obtained which combines the desirable elements of low first cost with flexibility to meet the needs of the future.

Owing to the irregular shape, it was found that an operating headquarters could be established about 100 yards from the flying center of the field without interfering with air operations. This obviates long taxiing about the field and makes possible the rapid removal of planes from the landing area. Along the Lehigh Valley Railroad, on the northern edge of the field, a certain amount of space was reserved for industrial sites and other purposes.

Runways

In order to facilitate take-off and assure year-round operation with safety, two principal runways were provided, one in the direction of the prevailing summer winds and the other in the direction of the strong winter winds. Each of these runways is 3,000 feet long and 100 feet wide. In addition, there are two auxiliary runways northwest to southeast and north to south, each 100 feet wide and 1,000 feet long, for use when there happens to be an unusually strong wind from these directions. These runways were first graded with a subcrown of from 8 to 12 inches to the 100 feet, drained, and the ditches for the drains backfilled with coarse gravel and crushed slag. A 2- to 3-inch layer of bank-run gravel was then applied to the entire width and length of the runways, then rolled with a 10-ton roller, followed by an 8-inch layer of cinders with additional rollings. Experience has shown that snowfall does not remain on such runways and they can therefore be used every day in the year.

In the areas between runways some grass has already been sowed and more will be added, so that under normal conditions pilots may land their planes safely on almost any part of the field. This will not be regular practice, however, the plan being to have all scheduled landing and take-off done from the runways, the remainder of the field to be used only for emergency landings.

AERIAL PHOTOGRAPH OF RUNWAYS, BUFFALO AIRPORT
View looking northeast

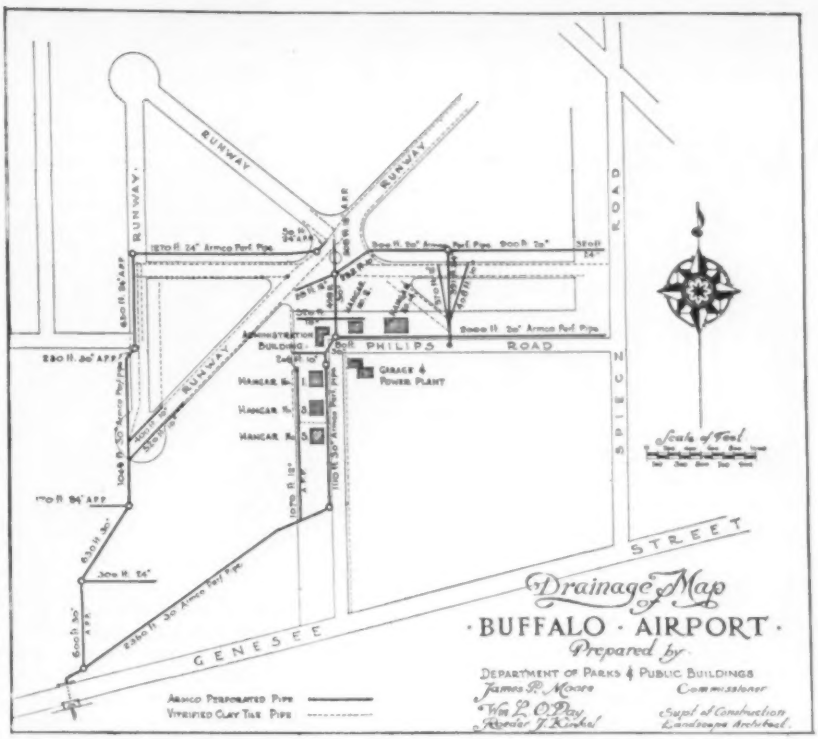
Drainage

A great deal of attention was given to providing proper drainage, since upon this feature and the consequent condition of the field, as much as on anything else, depends the safety of the planes while taking off and landing. Soft soil and ruts can have no place in a field used by heavy commercial planes operating on a day-and-night schedule.

To understand how adequate drainage was obtained at the Buffalo airport, it will be well to start by considering the topography of the ground itself. Although the field is high enough above its surroundings to make the ultimate removal of water from the field a simple matter, several factors entered in to make surface drainage difficult. The first of these was the slope of the ground. South of the east-and-west runway the slope was very gentle—barely enough, in fact, to provide a natural flow. Above the runway it was considerably greater. The effect of this was to cause water to pour down from surrounding areas, eroding the runway and then standing for some time on the main part of the field until it seeped away. Obviously, rapid collection of the water as well as rapid removal was essential.

At the outset it was realized, too, that a drain able to withstand the impact of landing planes must possess great strength and flexibility; particularly so, since the large area being drained called for pipe of considerable size. On that account, and because of the need for a pipe that would collect water rapidly, Armco perforated iron pipe was selected, being supplemented in the smaller sizes by vitrified clay pipe. Provided with holes throughout its entire length and covered with pervious material, the perforated iron pipe makes possible immediate removal of water from the field. That the system will operate even under abnormal conditions was illustrated when after four days of almost continuous hard rain, the runways were in the very best condition for flying.

To intercept water pouring down the slope at the north of the field before it reached the runway, perforated iron pipe was installed in a rock-filled trench at the base of the slope. It, too, has proved effective. As a result of the satisfactory experience with this pipe, it is planned to extend its use to include future runway drainage, one line of pipe to be used along the centerline of the runway in place of the two lines of small tile now used along its sides for that purpose.



GENERAL LAYOUT, SHOWING RUNWAYS, ROADS, BUILDINGS AND DRAINAGE AT BUFFALO MUNICIPAL AIRPORT

Buildings

At present there are seven buildings, all of permanent construction, on the field. These consist of five hangars, an administration building, and a combined garage and power-plant building. Other hangar units will be added as needed.

The hangars are built of brick, glass, and steel, and are of the most advanced type of construction. Their exteriors of white brick give pilots an exceptionally fine and distinctive steering mark. One of their outstanding features is the electrically operated steel curtain door which, together with movable pilasters, gives a clearance of 65 feet in width, and 14 feet in height. Although the door is designed for electrical operation, one man can, if necessary, open and close it manually. Concrete floors in the hangars and bituminous paved roadways leading to the runways make it an easy matter to taxi planes to and from the hangars under all weather conditions.

In planning the administration building it was desirable to make it the actual center of the airport. It accordingly occupies the corner position in the L-shaped space used for the group of buildings. The design of the administration building is unique. It consists of a center section in which all the controls are located, and two wings containing such additional rooms as are needed at present. The wings will be extended as need for more space develops and will provide not only housing for field operations but also for a post office, a customs house, passenger waiting-rooms, and offices for commercial air lines companies. The manager's office is located in the corner of the building and has a curved glass front, giving a view of the entire flying area.

Resembling a hangar in outward appearance, but smaller, the garage is completely equipped for servicing and repairing all automotive equipment. It also provides space for housing maintenance equipment and other airport rolling stock.

Equipment

As one might expect, the selection of proper equipment presented many problems. It was necessary not only to learn what had been done in other airports and adapt standard materials to fit specific needs, but also to devise certain items heretofore unknown.

All wiring is underground. In order to avoid disturbing paved areas, it was necessary to lay all conduits for this purpose with the complete development of the field in mind. Besides complete lighting inside and outside all buildings, plans provide for additional lighting of the entire field for night flying.

Every hangar is equipped with tools for the benefit of airmen who desire to work on their ships. Air, water, and gas are piped to each hangar. Field tools for use in airplane and ground work are kept in the storeroom. A service truck carrying 260 gallons of gasoline, 25 gallons of oil, 25 gallons of water, fire extinguishers, service lights, compressed air, and miscellaneous small tools and equipment, is in operation at the field.

A wind-cone is located on hangar Number One, and the words "Buffalo Airport" are painted on the roof of hanger Number Two to identify the airport and facilitate its location by an approaching plane. All lighting and other control are centered in the administration building, except the remote-control switches, which are located on a big switchboard in the garage.

Organization

The administration of the Buffalo airport is vested in the Commissioner of the Department of Parks and Public Buildings, who is a member of the Buffalo City Council. Directly under the Commissioner is the manager of the airport, Lieut. Edwin M. Ronne, who is in general charge of both construction and operation. Lieut. Ronne is exceptionally well fitted for this work, having served as a pilot in the U. S. Air Service during the war, and having been actively engaged in flying and field operation since then. He is assisted by Nat E. Duffy, Superintendent of Operations. Major John M. Satterfield, a local banker, with wide experience in similar work during the war, assisted the city in an advisory capacity. Wm. L. O'Day was Superintendent of Construction.

The airport has received the enthusiastic endorsement of various authorities who have inspected it.

Where Community Effort in Village or Township Has Made the Library Possible

WE are apt, nowadays, to take the well-endowed public library for granted in every municipality, large and small. But first-class free reading in abundance is by no means a universal privilege to be lightly accepted and enjoyed accordingly. Getting a library at all has proved a long-time and arduous undertaking in some villages and small towns, and the matter of upkeep a constantly recurring financial problem by year. These facts become apparent in a detailed study prepared by Wayne C. Nason, of the United States Bureau of Agricultural Economics, and published as Farmers' Bulletin No. 1559, under the title "Rural Libraries." The study examines in detail, incidentally, various types of libraries serving smaller municipalities, giving examples of each type. Nowhere is it shown, by inference or otherwise, that the (in some cases, tremendous) amount of local effort expended in getting and keeping a public library is not far outweighed by the service the library renders.

The municipal library, the school district library, the township, community, and membership fee libraries, are all taken up and discussed. Only the municipal, the township, community and membership-fee types will be here considered.

Municipal Libraries

"Municipal libraries, owned and supported by villages and small towns, are rather common in rural territory, especially in the eastern section of the country. They are supported by fixed tax rates or regular sums voted from the general fund. Sometimes they are a donation to the town. Often they are former membership-fee or community libraries that are taken over by the town. They are usually restricted in their use to citizens of the municipality, but they sometimes extend their facilities for a fee, or infrequently as a courtesy to neighboring farm communities, especially where efforts are being made toward town and county cooperation. . . ."

Thorpe, Wis., a village of 796 inhabitants, has taxed itself for fifteen years for the maintenance of such a library, Mr. Nason records, and has made the library facilities available in the broadest possible way to the surrounding country. The genesis of this library, and its evolution from the day in 1893 when the state sent a traveling library through the section, are interesting, and perhaps fairly typical:

"About 1901 a local woman's club adopted the library as its special project. Its early support was derived from receipts from entertainments sponsored by the club and participated in by town and country people alike. While the club was industriously working to support the library by increasing the book supply, it was systematically laying aside a building fund. In 1906 the club purchased a building and fitted it up for library purposes for $300. In 1911, the village. . . . voted a 0.5 mill maintenance tax, and the library was placed in the name of the village. As the library continued to grow in usefulness, the club proceeded to accumulate a fund, through receipts for entertainments, for a permanent building, meanwhile voting a sum toward yearly maintenance."

Today there is a well-planned, well-equipped modern library, well-placed on grounds made attractive by planting of trees, shrubs and flowers. The building and lot are valued at $5,500. The village itself gave nothing toward the property but had previously raised the library maintenance tax from 0.5 to .08 mill. According to the latest available figures, there were over 3,000 volumes in the library, and 761 active borrowers' cards in use. The current expenses are taken care of by book fines, and the several hundred dollars annual deficit in maintenance from the tax money is made up by the club.

THE WOMEN OF CLARKSVILLE, MO., ARE RESPONSIBLE FOR THIS LIBRARY AND ITS MAINTENANCE IN A VILLAGE OF 729 PEOPLE

Township Libraries

There are 574 township libraries in 13 states, mostly in the Middle West and in New York. This organization is shown to be a unit of effective service only in wealthy and populous townships, where often book automobiles are used to supply outlying branches. One tendency is for the leading town, as it becomes larger, to add its separate tax support, thus making the township library more a municipal institution. One very successful township library today (one of the number which maintains a rest room) is a pioneer.

"When the first settlers came to the Otsego (Michigan) country in 1839, it was a wilderness. . . . Notwithstanding the hardships of felling forests, building roads, and fighting wolves, these pioneers early laid the foundation for a good kind of rural civilization, for it was in 1844, only five years after the first settlement, that the township people in town meeting voted $25 to start a township library."

The building now in use was financed by community effort, under leadership of a women's organization, but has since been taken over by the township.

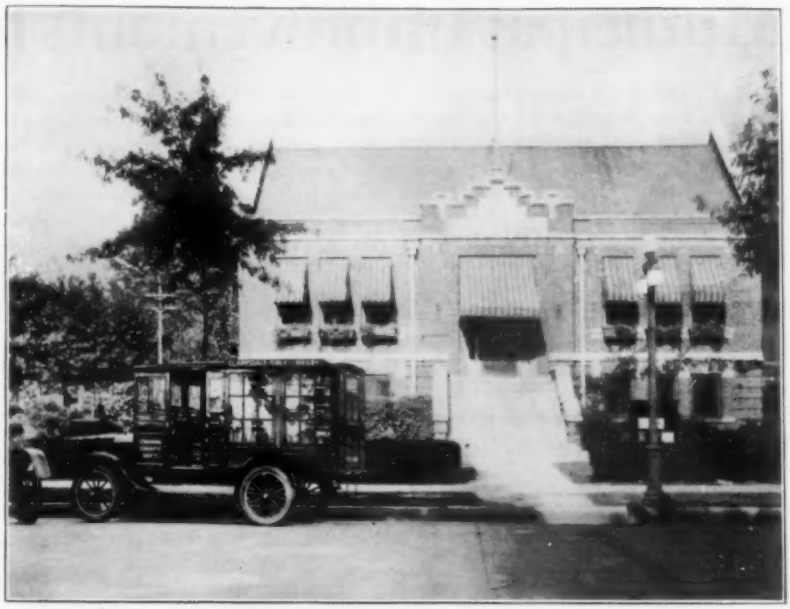
Community Libraries

Community libraries are open freely to the public; are supported by voluntary common interest of the people rather than by taxation or by membership dues; extend their usefulness to all parts of the community alike; and, although perhaps sponsored and ultimately controlled by a single organization, are the care and charge of the whole people. Libraries of this type are maintained by annual drives and receipts from entertainments, generally with a women's organization as sponsor. Clinton, Ky., is cited as having a typical example of this sort of library organization. Library activities there, as described, indicate the extent to which community enthusiasm may be engaged in the interest of such an enterprise. The institution is known as the Hickman County Library, though neither county nor town gives financial assistance. It is the only library in the county of over 10,000 population. It is the only place in the county where books can be ob-

tained, as there is no bookstore. Country people are encouraged to use the library freely, and do so.

The women's clubs, composed of fifty women, mostly wives of farmers, is the motivating force, Mr. Nason reports, and holds title to the institution, but the library is supported by both town and country people. The building, which was bought and remodeled by the club, has a book room, a reference room, a museum, an equipped kitchen for community meeting uses, a hall and an assembly room with movable seats. There are 2,475 volumes in the library, and about half of the registered borrowers are shown by the last available figures to live out of town. Both town and county schools are supplied by the library with their reference material. Maintenance expenses are met by entertainments given by town and country women.

"The women are undaunted by the $2,000 debt. They regard it as a stimulus. They know that continued work, more community effort and mutual aid by town and country people will eventually wipe it out. It must be liquidated, for they see in the future a new library building on the same spot. They also see illiteracy wiped out, rural book hunger satisfied, children's mental wants supplied, a higher level of general intelligence, and better town and country cooperation."



THE PUBLIC LIBRARY IN CLARKSVILLE IS THE CENTER OF COUNTY-WIDE BOOK DISTRIBUTION

An area of 530 square miles with a population of 41,511 is served by branch stations and book automobiles

Membership Fee Libraries

The membership library is a common form of book service in small communities, and in some larger ones, though it has its definite limitations. The library in Clarksville, Mo., a village of 729 inhabitants, was opened in 1900, and for ten years was kept going by a band of women. At the end of ten years, the women had accumulated a building fund through rummage sales, food exchanges, local plays, and lawn fetes, and from public contributions, and an attractive brick building was erected at a cost, including the grounds, of $4,500. The opening was a great civic event. By 1920 the property had been completely paid for by voluntary effort. When the building was dedicated, a library club was formed, with a membership fee of $1 annually. Title to the building is held by the club. Maintenance costs are met by receipts from entertainments. The library board and members of the club are to be seen in the early morning, it is reported, working on the grounds, which are attractively planted, with vines covering the library walls, well-kept lawns, with trees, shrubs, and a hedge. This library is declared by the officials to be "a great profit to the people, breaking the monotony of small-town life." "Its growth and appreciation after 26 years," they report, "demonstrate the need of it and its benefit to the community."

How Shall Justice Be Attained in Land Condemnation Proceedings?

THE recent announcement of Mayor Walker, of New York, that the "death knell of condemnation for park sites has been sounded," and that from $6,000,000 to $8,000,000 will be saved on only two park sites by privately purchasing them instead of condemning them, has evoked a statement by William H. Allen, Director of the Institute for Public Service, in which the Mayor is urged to consider that "the more you buy by private sale the more will inequitable under-assessing, unless corrected, often expose you to criticism and suspicion for allowing a half to two or three times more than the tax department says property is worth."

Assessed valuations of real estate in the city of New York are supposed to be more nearly on a 100 per cent basis than in any other large city. The great contrast, however, in valuations for taxation as compared with valuations for condemnation, is pointed out by Dr. Allen:

"Not including city lawyers, expensive outside appraisers and other court costs, seventy properties recently condemned by the city cost 338 per cent as much as the tax department certified was their full market value. The ratio of award to assessment for taxation ranged from 112 per cent to over 2000 per cent. The awards were $9,139,000. The assessments were $2,792,000. The $6,347,000 difference measures the extent to which the taxpayers were gouged by either condemnation or under-assessment.

"The minutes of condemnations prove that the city is bound to be victimized as testimony is now given. By no stretch of the imagination can it be claimed that the Law Department, Supreme Court, Tax Department, Comptroller and Mayor are doing their best to protect all taxpayers from being gouged by a few taxpayers as land is now condemned and assessed.

"If 100 cases were studied as to procedure by a skilled lawyer and a skilled realty appraiser working together, or by a committee of the Bar Association and the city's Tax and Law Departments, the results would unquestionably disclose a menace to public morals and tax funds far greater than ambulance chasers and burglars.

"It seems incredible that after all which New York spends on technical ability, a Supreme Court justice should decide an award as follows:

"'I do not give any credence to the testimony of the city's expert of land values, as I find it unworthy of belief. I have examined the property but have no personal knowledge of its value. I therefore accept the testimony of the owner's witness.'

"Yet these are the words of a justice explaining an award of three times the assessed valuation, and nearly 70 per cent above the city expert."

Other examples of inequitable methods are followed by this concluding comment by the Institute for Public Service:

"Only decisive fact-based action will stop the scramble of lawyers, appraisers, hospitals, churches, charities and courts to keep up with the Joneses on the condemnation band wagon.

"Until such action it is futile to expect children and delinquents to be turned away from anti-social practices by moral training in church, school and jail."

Municipal Improvements in Monroe, La.

WITHIN six years Monroe, La., has constructed an electric light and power plant, paved more than thirty miles of streets, constructed four new school buildings, built a municipal golf course and club-house, constructed a new fire-station, built 40 miles of sewers, and laid fully as many miles of water-mains. Recently a $600,000 bond issue was created to take care of water-works improvements that are contemplated.

Burns & McDonnell, consulting engineers at Kansas City, Mo., designed and superintended the construction of the new water-works. A large filtration plant with a steel wash-water tank of 100,000 gallons capacity and a half-million-gallon storage tank on a 1,500-foot tower were recommended. In the late fall of 1927 the contract for the filtration plant was let to B. E. Buffaloe & Co., Memphis, Tenn., and the contract for the steel tanks was let to J. S. Schofield's Sons Co., Macon, Ga.

The work was recently finished. In addition, a new 3,500-kw. turbo generator was installed in the electric plant, bringing the capacity of the plant up to 7,600 kw.

Paralleling the municipal work has been the construction of a new eight-story office building, a nine-story annex to the Monroe Hotel, and plans for two more large hotels to be built in the near future.

NOTABLE IMPROVEMENTS IN MONROE, LA.

1. 100,000-gallon steel wash-water tank erected on a 4-column channel tower, 40 feet high, for the Monroe water-works. 2. The municipal golf club-house. 3. The City Hall. 4. A 500,000-gallon steel storage tank on twelve 115-foot latticed columns for the municipal water-works

A. S. T. M. Standards in Building Code Work

THE standard specifications of materials established by the American Society for Testing Materials from time to time are playing a more and more important part in connection with building codes, drafted or revised by various cities. This fact is emphasized in a statement by Rudolph P. Miller, consulting engineer, of New York, and a member of the Building Code Committee of the Department of Commerce, in a recent issue of the A. S. T. M. Bulletin, and an investigation by the staff of the Society reveals that a large number of these standards are referred to in the various building codes of the country, either directly or by the use of specifications that are in conformity with A. S. T. M. standards. The following are said to be the standards to which more frequent reference is made in connection with building codes:

For Structural Steel for Buildings (A 9 — 24).
For Steel Castings (A 27 — 24).
For Gray-Iron Castings (A 48 — 18).
For Refined Wrought-Iron Bars (A 41 — 18).
For Billet-Steel Concrete Reinforcement Bars (A 15 — 14).
For Rail-Steel Concrete Reinforcement Bars (A 18 — 14).
For Cold-Drawn Steel Wire for Concrete Reinforcement (A 82 — 27).
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Definitions of Terms Relating to Structural Timber (D — 15).

Organization of Bond Elections

By V. W. WHITFIELD

E. T. ARCHER AND COMPANY, CONSULTING ENGINEERS, KANSAS CITY, MO

PRACTICALLY every firm of engineers handling municipal work have a section of their files serving as a morgue for preliminary plans, reports, and estimates of cost of various projects whose epitaph as given in the construction journals is "Bond Election Failed."

In many cases these remains represent not only a community deprived of a much-needed improvement, but a financial loss to the engineer. Occasionally a project will be revived, but even in such instances, additional expenditures are necessary in bringing estimates up to date, revising plans, and rewriting reports, for which additional fees are difficult to secure.

Engineers and municipal officials, therefore, should be very much interested in the methods of securing publicity for bond elections as described in the article by J. H. Sellers on page 153 of the April issue of THE AMERICAN CITY.

Publicity, though a necessity, and without which most bond elections would fail, is no guarantee of success. The lassitude of the voter must be guarded against, and at least the first portion of that political motto, "Vote 'em early and often," must be heeded.

How a Water-Works Bond Issue Was Carried

It has recently been the good fortune of this firm to be selected as engineers to design a water-supply project for a town of about 20,000 people. At the previous city election the voters had elected as their Mayor a man, who, in addition to being one of the town's outstanding citizens, was what might be termed a "practical politician."

When time for bond election rolled around, many of the leading civic organizations asked to be allowed to assist in securing the necessary votes for its passage. To these requests the Mayor acceded, and asked that a representative from each body be present at a meeting to which he also invited one of the leading bankers, the engineer, and the City Attorney. These latter three he introduced as the "Technical Staff" and announced that up to the time the balloting was completed they were to be available to answer any questions regarding the financing, design, construction, or legality of the project.

Those attending the meeting as representatives of the civic organizations he designated as the "Bond Committee." To them, and to such subcommittees as they might see fit to organize, was given complete charge of transportation and publicity. No instructions were given them as to methods of procedure, but they were told that at least a hundred cars would be needed, and that the publicity should be such that every voter in town would be acquainted with the details of the improvement, the date of the election, and the location of the polling places.

Importance of the Personal Element

The bond issue election here described is cited as an instance of the power of a quickly formed organization, since the entire bond campaign covered less than eleven days.

The publicity secured through the efforts of the committee was invaluable in assisting the solicitors, but in the final analysis the actual votes were secured by the power of personal persuasion, reinforced by a knowledge that their presence constituted a personal responsibility.

Deciding that additional organization was necessary, the Mayor secured a map of the town and after dividing it into wards and precincts called one man in each subdivision, of which there were ten, to attend another meeting. These men were selected from every station of life, one being the pastor of a church, another the keeper of a soft-drink stand, another a teamster, and another a leading attorney. They all, however, possessed two things in common. In times previous they had demonstrated their desire to build up the town and their ability to deliver votes. With the assistance of the "technical staff," the project was explained to them at the meeting and their cooperation secured.

To each of them was then delegated the task of securing the attendance of ten more men living in their respective areas, at another meeting to be held the next day. This meeting, at which there were 120 people in attendance, more nearly approached the proportions of a mass meeting than any other held. The Mayor occupied the chair but had previously arranged with one of the leading boosters of the project to act as floor manager. The "technical staff" being present, the design was again studied, questions asked and answered, and at a psychological moment the floor manager arose and in an impassioned speech announced himself for "better water, a better town and the passage of the bond election," asking all who agreed with him to rise. Since all those present had been hand-picked and their sentiment toward the bond issue ascertained, the response was unanimous.

Getting Out the Vote on Election Day

The Mayor then imposed on each of the last 100 selected the duty of securing at least ten votes for the bonds—not only to secure the voters' promises but to see that the votes were cast before noon and to telephone bond headquarters as soon as all had voted. They were told that if a car was required, it would be furnished, and if they were unable to answer questions on the details of the project, information would be furnished on request.

To assist in the distribution of transportation, and prevent any duplications in the list of voters, duplicate mimeographed forms were furnished them, with spaces for the voter's name, his address and telephone number, and if transportation was desired, the most suitable time. It was requested that one of these forms be returned to headquarters and the other retained. The duties of the first ten were then extended to seeing that the lists were returned, with the proper number of names secured.

In order to make certain a few more votes, an estimate of the amount that would be spent locally for construction bond premiums, lumber, cement, hardware, etc., was prepared. A meeting of the dealers and agents interested was then called, and it was explained that this amount would be spent locally to the benefit of local business men if the bond issue carried. Naturally, it was not difficult to secure their cooperation, and each promised to deliver ten votes, one of their number being appointed to see that they did.

A Special Telephone Installation

For election day a centrally located street-level building was secured, five telephones installed, and the services of some experienced girls enlisted. Cars had been assigned where requested, and, since many of the workers furnished their own, about thirty were left as a flying squadron to pick up stray voters. The publicity committee had done their work well, and the newspapers carried a notice on each page advising voters where to vote and where to call for cars.

Checkers, well acquainted in their districts, were placed at each polling place to count voters entering, and to advise, from their knowledge of the people, how the vote was going.

About noon, reports began to roll in. As fast as they were received, the check lists were marked off, and about one o'clock the girls started on the delinquents. In case the captain could not be reached, the voter was called direct, and if he had not voted, an appointment was made and a car dispatched.

About four o'clock the calls were repeated, but so effective had been the organization that delinquents were few, although work was continued up to the closing of the polls.

Nature Study and Outdoor Museums

NATURE is forever putting on exhibitions. Every park and roadside offers a perpetual succession of trees and flowers, rocks, bees, brooks. All such things, declares Laurence Vail Coleman, Director of the American Association of Museums, challenge the attention of forward-looking museums and, under the stimulus of a vast amount of interest in the outdoors on the part of the public, are accounting for real progress in formulating new museum methods. He tells how these experiments have resulted in the establishment of such delights for the city-dwelling vacationists and others, as national park museums, camp museums, nature trails, and trailside museums. He sees them, too, as holding promise for a most delightful new institution to bring beauty and delight to the city dwellers at home—the museum park. The spread of municipal camps, with their vast acreages of untouched outdoors, from one end of the country to the other, and the administration of these by municipal recreation departments greatly broadens the significance of what Mr. Coleman has to say, particularly of camp museums and nature trails.

The different already established mediums of nature study—the national park museum, the camp museum, nature trails and trailside museums, and their present organization and progress, are described fully in one section of an official report prepared by Mr. Coleman at the request of the National Conference on Outdoor Recreation, and recently published under the title, "Contributions of Museums to Outdoor Recreation."

He describes the most advanced of the national park museums as existing at Yosemite, Yellowstone, and Mesa Verde National Parks, and the Casa Grande National Monument. Continuing, he says:

Camp Museums

"Camp museums have had their inception and most flourishing growth at the Palisades Interstate Park within the sphere of museum influence exerted from the metropolis. They were, at first, products of Boy Scout activity. . . . Each summer small collections of rocks, minerals, plants and animals of the park were brought together by the boys, and some of these objects were installed temporarily in tents or camp buildings for reference by those who were working with them, as well as for inspection by any others who might be interested. Some of the more mechanically inclined boys devoted themselves to making shelves, cases, and mounts, while the naturally studious ones identified specimens and prepared labels. Despite the limitations under which the work was carried on, most of the exhibits were pleasing and instructive, and some of them extremely well executed."

Mr. Coleman tells how this work grew from year to year till the park administration determined to extend it, which they did by engaging a special staff of assistants, who now lead museum work on four lakes other than the one where it is well rooted under the Boy Scout aegis. In the spring one or two young curators—college students or graduates—are assigned to each lake, and they busy themselves till fall in developing exhibits, giving talks to groups of boys and girls, and helping the nature councilors at nearby camps. The park commission has erected a small museum shack on each of the four lakes. Camp museums give special instruction and tests to any campers who wish to qualify for credits.

Nature Trails

"The idea of nature trails was also first carried out at the Palisades Interstate Park—in the Harriman Section, where the American Museum of Natural History established its Station for the Study of Insects in 1925. . . . The original nature trail was a mile of woodland path along which trees, herbs, insect workings and a few temporarily caged insects, reptiles and mammals were labeled for the benefit of whoever might care to come and observe. The trail was divided into two half-mile sections, each having the form of a loop. The first section, or so-called "training trail," was designed to convey information. Linen tags with brief legends were attached or placed in nearness to hundreds of features along the way." Mr. Coleman quoted Dr. Frank E. Lutz, the station director, as saying ". . . the labels were more 'chatty' than many scientific institutions think is compatible with dignity. Then, although few of the visitors realized it, the labels were so written that a given subject was opened simply, became more complex, and was closed by a short summing-up or by a few questions." A sign at the starting point invited the passing park visitor that "a friend somewhat versed in natural history is taking a walk with you and calling your attention to interesting things." The labels, made on the spot, are described as giving in some instances more than a name—informative comments, playful allusions, suggestive questions, and quotations of prose and poetry being introduced. A few celluloid-covered pictures and diagrams were put up, and various detention places for insects used.

The second half-mile, designated the "testing trail," posted fifty questions constituting an examination on the training trail subjects. Great interest was shown by the public. Despite the fact that individuals and parties went over the trails unattended, there was no vandalism. "In two years since this project was carried out, the nature trail idea has spread to many camps, and also to city parks and at least to one botanical garden. It is estimated," Mr. Coleman continues, "that no less than 200 such trails were made last summer."

Trailside Museum

"In the beginning, the trailside museum idea was born of the conviction that a national park is itself a museum—a vast permanent exhibit illustrating natural law, supplemented by an ever-recurring series of seasonal temporary displays. Seeking means of interpreting these nature-made exhibits to the public, the Committee conceived the plan of erecting shelters along the roads or trails at appropriate points and installing in each of them a few specimens with labels, a chart or two, and perhaps a model—all relating to natural features near at hand or in sight, and all elucidating these features." (This was in Yosemite Valley, where the Committee on Museums in National Parks of the American Association of Museums evolved the new educational idea which took form in the trailside museum.) "The scheme was soon recognized as one of wide applicability. It appeared that any museum might locate trailside, pathside, or roadside exhibits at favorable points on park paths, along highways, or wherever circumstances might suggest. . . . To keep pace with the progress of its thought, which had been carried far beyond the bounds of national parks, the Committee changed its name to Committee on Outdoor Education and, in its larger capacity, approached the foundation which had financed the work at Yosemite, and secured funds for the erection of two more demonstration trailside museums—one in the East and one in the West." The first of these is well launched at Bear Mountain near the administrative center of Palisades Interstate Park. The Committee is now making another trailside museum in the Grand Canyon National Park—at Yavapi on the south rim.

"As to extension of the work through adoption by other organizations—that will follow naturally." Mr. Coleman says in conclusion: "The interest which Scout troops, summer camps, and state and national parks have already shown indicates that the future will witness a widespread borrowing of museum methods. A notion which arises as corollary to all this is that museums in cities have opportunity to develop in the hearts of their communities what might be called 'museum parks'—tracts in which natural conditions can be preserved or given opportunity to restore themselves. One pictures a haven . . . where birds and the creatures which inhabit field or shaded nook or brook or pool may live. A narrow trail winds through this oasis on the urban desert. People would come to this haven to stroll along the path."

Park Commission of Burbank Enlists United Efforts of Citizens in 2,200-Acre Reforestation Enterprise

By IDA L. K. CLARK

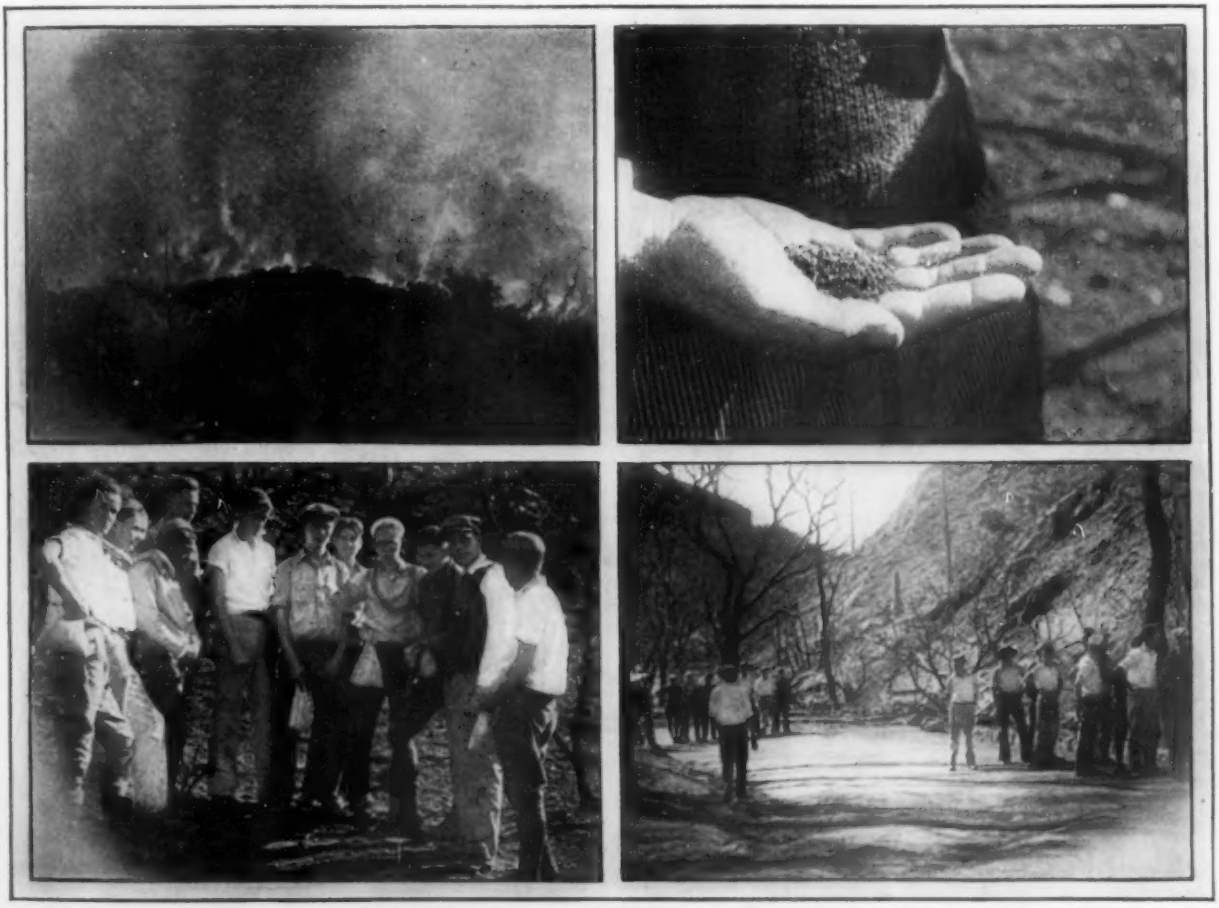
"*GREAT oaks from little acorns grow.*"

The Park Commissioners of the city of Burbank, Calif., recently discovered new literal truth in the old platitude, and, acting accordingly, went out and accomplished a work which is declared unique in the whole history of the world.

Surrounding hill slopes were naked and ugly. Flames had just denuded them, leaving free way for devastating soil erosion, and flood damage. The Park Commission, in finding a way to remedy these conditions, determined to create permanent hillside beauty. The result is that today, over an area of 2,200 acres, there repose in the earth many hundreds of thousands of germs that, when fostered by the rains and the golden sunshine of southern California, will make a perpetual green background for Burbank and a living memorial to the foresight and enterprise of the park commission.

Under direction of George B. Kittinger, a member of the Commission, the project was carried out by a thoroughly efficient method. Forty-five men and 385 youths from the senior and junior high schools, gathered one bright morning at the high school, and went from there to the mountains against which Burbank nestles. In about six hours, the 2,200 acres had been covered, from the street level to the summit of the peaks, which are approximately 3,200 feet in altitude. In this time there was placed in the warm earth, the following amount of seed, as estimated by Mr. Kittinger: 80,00 acorns; 26,000 scrub-oak acorns; 158,000 holly berries; 100,000 wild cherries; 20,000 black walnuts; 10 pounds sumac seed.

Planting irons were especially made for the work. A trench 12 to 18 inches long was dug perpendicular to the slope of the mountain, the deepest part 3 to 4 inches deep, at which point were dropped two acorns. In the trench on each side of the acorns, were dropped the other seeds, they to serve as nurse crops until "great oaks from little acorns" should grow, furnishing shade and preventing soil washing until the naturally sturdy little live-oak of California can get a start in life. When all seeds were in the trench, the soil was pressed down with the heel. Authorities say that Burbank may expect a 35 to 40



THE CITIZENS OF BURBANK, CALIF., ARE REFORESTING THE SURROUNDING HILLS

Above, at left, the fire that took every living thing on the mountains above Burbank. Above, at right, a handful of oak seeds that will beautify the denuded hills. The boys at the left have just been given bags of tree seed and with their adult captain are ready to do their part in reclothing the barren hills with flood-controlling, soil-retaining growth. The boys at the right, who have completed their task of reseeding the hillsides, are shown near the entrance of a canyon where the fire destroyed all the mountain vegetation and 95 week-end homes

per cent growth from the planting. To facilitate prompt starting of the germ, some of the varieties of seed were treated at the city's propagating plant.

The forty-five men who donned hiking duds and went forth with the boys to conquer the barrenness of the mountains were among the leading business and professional citizens of the place. They gave their time and, for them, unusual and strenuous efforts, solely for the benefit of their city. Women, too, had a share in the work, members of the clubs taking it upon themselves to prepare the hundreds of sandwiches furnished the laborers.

The activities of the occasion were thoroughly planned before hand, and those engaged in the effort, were well organized. They were like an army going forth to subdue their enemy of barren hills. The area was mapped, with numerous divisions designated, and the boys were formed into groups with a man to captain each group, each unit working an assigned section.

The Work Was Approved by High Authorities

Assisting Burbank with expert advice and furnishing large quantities of seed, was the Forestry Department of the city and county of Los Angeles. Among the forty-five men on the job the day of the planting, was F. M. Fultz, of the Los Angeles City Forestry Department, rated as one of the highest authorities in the United States on mountain forestry, and the author of much printed matter on related subjects. Speaking of the project that Burbank carried through, he pronounced it different in many details from anything else ever undertaken, so far as he knew, and one worthy of wide emulation.

Mr. Kittinger also had fine encouragement from the United States forestry division located in Los Angeles, where officials said that Burbank was doing a very remarkable thing, intimating that the effort would be officially recognized by high authorities. While Mr. Kittinger had this outside assistance, he devoted many days to planning and working for the success of the undertaking, which was a pioneer task with no precedent, therefore, by which he could be guided.

Burbank, through its Park Commissioner did a most unusual thing in reforestation of its fire-swept hills. More commonplace efforts in tree planting all over the city, have, however, been carried on so extensively as to give Burbank a favorable reputation throughout southern California for its appreciation of future needs and beauty. During the last two annual planting seasons, approximately 7,000 trees have been set along its streets and in the 17-acre civic center, where also have been started thousands of trees for future transplantation. Miss Octavia Lesueur, president of the Park Commission and a lover and ready champion of every tree, is credited with being instrumental to a great degree in the exceptional progress Burbank is making toward a future of wonderful tree-beauty.

Health in Story and Pictures

POPULARIZING health facts by means of cartoons, stories and special features to stimulate the interest of adults and children in the family is the aim of *The Health Bulletin Service* published monthly by the American Public Health Association. This eight-page bulletin has become individualized in the output of health literature by such features as the Bill Jones comic strip, Wes Williams's Philosophy on health questions that confront us daily, Nutrition News, by Edith M. Barber, a well-known food and nutrition consultant, "Ask Me Another," and a children's page. Each issue carries one to three articles on a seasonal health topic, prepared by a specialist in the field.

This health education service is prepared for city and county health officers in the United States and Canada, who distribute it among members of the local boards of health, teachers and school children, nurses, doctors and citizens interested in promoting community health. One health officer in Canada depends upon his public health nurses for the distribution of this bulletin in the community. When the nurse goes to a home she casually leaves a copy of *The Health Bulletin Service* on the table. In another city the bulletin is distributed among the children of the higher grammar school grades and the high school pupils, and through them it reaches the adult readers in the homes.

The bulletin is prepared in plate form, 7 x 4⅛ inches. The plates are mailed to subscribers, who have the privilege of purchasing the complete service or individual features. In some instances seven pages are purchased by health officers who use the final page for the presentation of their local news. Prices, samples, and other information regarding the service may be obtained from the American Public Health Association, 370 Seventh Avenue, New York.

HEALTH TONICS *for* HOT WEATHER

Sewage Sludge as a Fertilizer

By JACK W. JAREO

THE sewage disposal plant at Madison, Wis., is equipped with six Imhoff tanks, which give to the sewage plant a capacity of six million gallons of material each day. The tank portion of the plant is divided into six units, with the third unit divided again into two half-units. Two sets of primary and secondary sedimentation tanks are located on each side of a sludge digestion chamber, which is again connected with a third settling tank known as the colloidal tank.

The primary and secondary sedimentation chambers are each 20 feet square and 15 feet deep, with hopper bottoms 4 feet deep. The colloidal tank is 20 feet wide and 60 feet long, with a sloping bottom 8 feet deep at one end and 12 feet in depth at the other. The primary and secondary tanks have a capacity of 28,500 gallons each, and the colloidal tank has a capacity of 66,000 gallons. Between the primary and secondary sedimentation tanks is located the sludge digestion chamber, which is 40 feet long, 20 feet wide, and 10 feet deep.

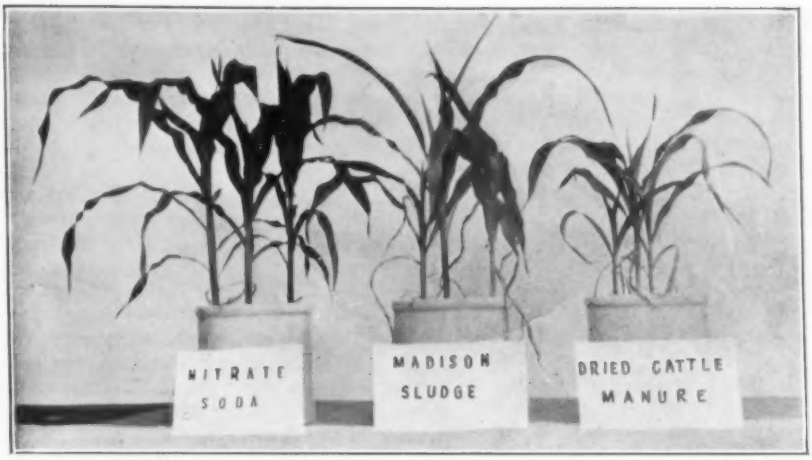
The sewage enters the plant through an inlet channel after having been in the passage for eight hours from the time it left the city proper. The sewage takes from three to four hours to complete its course through the sewage disposal plant. It passes through a baffle or screen at the inlet opening into a primary sedimentation tank. From this tank, the effluent discharges under a scum board, flowing across a sludge digestion tank through shallow channels to the secondary sedimentation tank.

The heavier particles from the suspended solids settle to the bottom of the primary and secondary sedimentation tanks. The lighter particles rise to the top, but are retained in the tanks by the scum boards. The solids thus accumulated are removed to the sludge chamber, where they are digested. It is in the sludge digestion tank that the sludge fertilizer is made by allowing the solid material to remain for six months in order that bacteria can act upon the matter, after which the black, semi-liquid sludge is pumped out on drying beds and left until it can be removed with rakes, to be sold as a commercial fertilizer.

The effluent, after passing through the secondary tank, flows over a weir and under another baffle into a colloidal tank that leads to an outlet channel. The effluent from this channel falls upon specially constructed frames which act as aerators. The effluent then goes to a contact dosing chamber which consists of two layers of stone on a concrete floor to a depth of 6 feet. The concrete floor is regularly perforated with small tile pipe that leads to a collection chamber lying beneath the concrete floor.

When the water-level in the contact dosing chamber is 6 feet above the level of the concrete floor, a siphon is tripped and the waste is sprayed through nozzles spaced 12½ feet apart upon trickling filter beds. The waste is carried from the contact dosing chamber to the siphon chamber by a 36-inch pipe line. The filter beds are filled with coarse stone and are from 2 to 3 feet in diameter and about 10 feet deep. The waste percolates through 6 feet of stone on the filter bed. The stone varies in size, from ¼-inch on the top to 3 inches and over at the bottom of the bed.

After passing through the filter bed, the waste collects in underdrains and is discharged into the moat which surrounds the filter beds. The effluent from the trickling filter beds unites in the moat, passes into an outfall sewer, and finally enters a river. The outfall sewer empties at the mouth of this river where the river enters into one of the large lakes in the proximity of Madison.



RESULTS OF EXPERIMENTS WITH MADISON, WIS., SEWAGE SLUDGE
Corn, four months old, raised in quartz sand and the indicated fertilizers. Madison sludge growth almost equals the expensive pure nitrate of soda compound

POTATOES GROWN NEAR MADISON, WIS.
The 1927 yield per acre for potatoes grown with sludge was 132 bushels, with manure 84 bushels, and with no fertilizer 22 bushels

Sludge Experiments

It has been mainly through the work of Dr. Bernard P. Domogalla, Madison bio-chemist, who for a number of years has been experimenting with the use of sewage sludge as a fertilizer, that Madison has been able to go beyond the experimental stage in marketing sludge. Dr. Domogalla, through countless tests, has at last produced results with the use

of sludge that would bring revenue to the city.

Although the population of Madison does not exceed 50,000, which limits the output of the disposal plant, the city has been able to produce about 5 cubic yards of commercial sludge per day. Under the present program, the sludge is being sold at 50 cents per cubic yard, which gives to the city an income amounting to almost $1,000 annually.

Because of the facilities of the modern and efficient sewage disposal plant recently installed at Madison, the removal of the sewage sludge has been made comparatively easy. After the sewage has entered the plant, the solids are immediately separated from other matter and placed in large tanks, where a thorough process of digestion is carried on.

After a period of six months, the material is taken out of the digestion tanks by means of pumps, as 95 per cent of the digested sewage material is water. This substance is then spread on sand drying beds, exposed to the rays of the sun. After a drying period covering from one to three weeks, the sludge is ready to be sold as a commercial fertilizer.

The sludge in its marketable form has the appearance of dried peat, and when handled has a feel similar to that of common soil. It is absolutely odorless. By exhaustive tests made by Dr. Domogalla, the sludge has been found to contain no disease germs or any material of a harmful nature. Dr. Domogalla in his tests was also able to compile tables showing the value of this fertilizer, and the exact chemical constituents of this commercial product. Astonishing results in the comparison of the value of the sludge based on the price of the chemicals that it contains were the results of these figures.

"The sludge removed from the drying beds," reports Dr. Domogalla, "is worth $6.25 per cubic yard, based on the nitrogen, phosphorus, and potash content. This sludge contains about 50 per cent of organic matter, and therefore has a further value as a soil conditioner. From average analyses of 25 samples taken from all seasons of the year, the total nitrogen content averaged from 2½ to 3½ per cent. The total phosphorus content averaged from 2 to 3 per cent, and the total potassium from 1/10 to 5/10 of 1 per cent.

"There are about 5 cubic yards of sludge produced in one day at the Madison sewage disposal plant, or about 4½ tons of the material. One cubic yard of the sludge weighs 1,735 pounds and contains 22 pounds of nitrogen, 12 pounds of phosphorus, and about 1 pound of potash or potassium."

Test of Sludge as a Fertilizer

During the past year a number of greenhouses and field trials were conducted in an effort to bring out the value of the Madison sludge in comparison with other fertilizers. Oats and corn were raised on pure quartz sand in the greenhouse, with mined sand as the only sources of nitrogen. This fertilizer was found to be equal to packing-plant tankage, and better than cattle manure. Carnations, chrysanthemums, and sweet peas were also raised in the greenhouse, and showed marked improvement upon the addition of Madison sludge to the soil.

In numerous trials on Madison golf courses, lawns, and shrubbery, Madison sludge has given the same results desired from any higher-priced commercial fertilizer. It has been found to be an excellent source of nitrogen for use on golf-course greens when applied mixed with the usual soil and sand combinations as a top dressing.

"Plots of corn, tobacco and celery," said Dr. Domogalla, "were raised on the University of Wisconsin agricultural experimental farm with Madison sludge, with cattle manure, and fermented straw as fertilizing material. In these experiments Madison sludge was found to be equal to, if not better than, these more common fertilizers. The sewage sludge was also tried on potatoes grown on light, sandy soil. This light soil without fertilizer yielded 79 bushels per acre, and upon the addition of Madison sludge, the yield was increased to about 150 bushels to the acre, or almost double the former yield."

In addition to securing the sludge from the sewage disposal plant, Dr. Domogalla has experimented with the use of the waste gases from the sludge beds for illumination purposes and for the development of power with which to operate machinery at the Madison disposal plant. At present, studies are being made to determine what revenue could be derived for Madison through this agency. It is now roughly estimated that about 500,000 cubic feet of gas are wasted at the sewer plant each month. According to reports made by Dr. Domogalla, methods used by European cities in converting this waste gas successfully could be readily adapted in this country, thereby utilizing a present worthless product as an efficient fuel, and giving a further source of income to Madison to aid in defraying present expenses of upkeep at the plant.

The Recreation Department Transfers Activities to the Big Outdoors

THE universal urge to the gypsy life, which is a part of our primal heritage, plus the ultra-modern gasoline urge to travel fast and far, has resulted in a notable recent development of the summer camping idea. It has been estimated that there are 25,000 non-profit camps operated by private organizations, to say nothing of camps operated on a charity basis, those privately operated for profit, motor camps, etc. The newest addition to the outfit is the municipal recreation camp, which is the most democratic, most broadly appealing, in general, of them all, being usually operated on a self-supporting basis for people of various age groups. It has been called the extension department of the school center and the playground.

Los Angeles, which pioneered in establishing the new form of outdoor public recreation, now operates three highly developed camps, two in the San Bernardino National Forest and one in the High Sierras. These have comfortable, well-ventilated cabins, attractive dining-rooms, lodges with assembly rooms and libraries. A wide program of recreation is planned for everybody. Oakland also has an outstanding modern group of camps in the High Sierras. The largest municipal recreation camp in the Middle West is operated by the city of Detroit, which owns the beautiful 300-acre site surrounding a lake 45 miles from the city. Here 400 children a week lead an ideal, democratic outdoor life all summer, and during September the camp becomes an adult vacation spot. The Westchester County Recreation Commission, New York, operates a large camp on the Hudson River, started for boys and girls and enlarged this season to provide a separate unit for mothers.

On account of the actual cost basis on which municipal camps are operated, campers at some places are required to perform certain light duties. Instead of proving irksome, this cooperative labor is often found one of the most interesting diversions of the day. The small accompanying cartoon, which presents so perfectly the spirit of camp life, is reproduced by courtesy of the Rutland County Council, Boy Scouts of America, from the Industrial Survey of the City of Rutland, Vermont, which has been recently published.

Sureties with Bids and Contracts

By RUSSELL FORBES

DIRECTOR, MUNICIPAL ADMINISTRATION SERVICE; SECRETARY, GOVERNMENTAL RESEARCH ASSOCIATION; AND LECTURER ON MUNICIPAL GOVERNMENT, NEW YORK UNIVERSITY

IN the "good old days," which, happily, are gone beyond recall, public orders and contracts were awarded on the basis of snap judgment, friendship, or partisanship. This led to widespread graft in buying and to innumerable scandals. As a safeguard against the "spoilsman," competitive bidding for public business was required by state constitutions and city charters and the award of orders and contracts to the "lowest bidder" became an almost universal practice. Experience soon demonstarted, however, that the lowest bidder is not always the "best" bidder, for defaults on contracts and the substitution of inferior commodities on deliveries were a common occurrence. Of late years many constitutions and charters have been changed to require award of business to the lowest *responsible* bidder. As a guarantee of good faith in submitting bids, and of responsibility for performance of contract, governments now almost without exception demand some form of surety from the contractor and vendor.

A surety is defined in law as "one who, at the request of another and for the purpose of securing to him a benefit becomes responsible for the performance by the latter of some act in favor of a third person or hypothecates security therefor." This refers particularly to personal or corporate security in the form of a bond or negotiable instrument. Other forms of surety are cash, certified check, or retention of part payment until satisfactory completion of the order or contract.

The government cannot afford to risk non-fulfillment of an order by an irresponsible bidder who finds that his bid was too low to allow him a profit, or who finds that he can market his product to better advantage elsewhere. Reenactment of the purchasing procedure to award a new order means a delay which may cripple and hold up governmental activities, with serious consequences to the public. Default on a contract may involve loss for all parties concerned. If it be a contract for a construction project, the public will be deprived of the use of the improvement, and the ultimate cost may be materially increased if a substitute contractor need be found to complete the work. The contractor may go bankrupt, lose the amount retained by the government from the progress payments, and suffer a loss in reputation. The surety company may lose the amount of the bond or, instead, may have to complete the project through employment of a substitute contractor. A public corporation would therefore be foolhardy to throw itself on the mercy of the vendor or contractor without some form of surety.

Powers Which Should Be Accorded to Purchasing Agents for Public Works

The accompanying article was presented as a paper at the annual convention of the National Association of Purchasing Agents, in Kansas City, Mo., May 29. In summarizing his conclusions the author recommended to the Convention the two following principles as necessary to progress in this phase of governmental purchasing under discussion:

1. ***That the purchasing agent, either on his own responsibility or jointly with some other responsible official, should be permitted by law to determine when and in what amount surety shall be given with bid.***

2. ***That the purchasing agent, exercising the right now given by law, should investigate the bondability and reliability of the contractor, as a basis for determining the "lowest responsible bidder," and in lieu of or supplementary to the required surety.***

Survey of Present Practice

(a) *Sureties with Bids.*—There is a wide variety of practice among governments regarding surety with bids. Practically all governments divide their purchases into two classes: "informal" or "open market"; and "formal" or "contract" purchases. The amount of the expenditure is the line of demarcation, generally established at $500 or $1,000. All expenditures less than that amount may be purchased in the open market after an informal procedure. Bids are solicited by direct request to prospective vendors, supplemented by bulletin board advertising in some cases, but usually without newspaper advertising. As a general rule, bids on open market purchases are submitted unsealed, and are seldom accompanied by surety. To this rule there are, however, some exceptions. New York City requires a deposit of cash or certified check for ½ of 1 per cent on all bids less than $1,000 in amount. The state of Kentucky requires a deposit of $250 with all bids for staple supplies, irrespective of amount.

Formal purchases are generally marked by a more elaborate procedure. Bids must be solicited by newspaper advertisements which are displayed for varying periods. Bids are submitted sealed, and are accompanied by surety in most instances. But here, too, practice varies. The usual surety is 5 per cent of the amount of the bid. Los Angeles requires cash, certified check or surety bond for 10 per cent of the bid, while New York City requires a 30 per cent surety. In lieu of surety with bid on a formal order or contract, the state of Maryland requires a written statement in which the bidder agrees, if awarded the order, to reimburse the state for the price difference arising from open market purchase of any article which he fails to deliver in accordance with the terms of the order or contract. This is a simple and inexpensive method that deserves widespread adoption. As a substitute for surety, some governments accept a "surety's consent to bond," which is a written agreement by a surety company to bond the bidder to the required amount if his bid is accepted.

(b) *Sureties with Contracts.*—When the successful bidder is determined, the sureties of the unsuccessful bidders are generally returned forthwith. On contract orders, New York City retains the sureties of the two lowest bidders. If the successful bidder does not enter into contract within five days after notification of award, his surety is forfeited, and the contract is awarded to the next lowest bidder. In New York City the surety submitted with the bid is retained as the surety with the contract, since the requirement is the same—30 per cent. Usually the surety with the bid is returned and a new and larger surety is given when the contract is signed. The amount of surety with contract varies from 10 to 50 per cent of the contract price. On construction projects, the state of Wisconsin demands surety to the full amount of the contract. On public works projects requiring some time for completion, many governments also protect themselves against default by retaining a percentage of the progress payments. This

generally supplements the surety given when the contract is signed. Portsmouth, Va., retains 15 per cent, and the state of Wisconsin retains 20 per cent, of each monthly estimate.

Criticism of Present Practice

In the final analysis, the government itself pays for the surety. The average cost of a surety bond is now 1½ per cent of its face value. The contractor who does not include this amount in his bid is as rare as a day in June. New York City maintains a security deposit division in the finance department for handling deposits and bonds. Cash and certified checks are immediately deposited in the bank to draw interest until refunded. The city points with pride to the fact that the interest on such deposits is sufficient to pay the operating cost of the security deposits division. But in reality the city of New York bears the burden. The interest on the deposit, like the salesman's overcoat in his expense account, "is there but you can't see it" in the bid or contract price. In his annual report for 1924, C. D. Buck, Chief Engineer of the Delaware State Highway Department, showed that surety companies had received over $90,000 on contracts awarded by his Department during the preceding two years. Without doubt, this cost was shifted to the state of Delaware in the contract prices. I do not mean to imply that the cost of surety represents an unwise expenditure. On the contrary, without surety any government might lose annually more than the cost of all sureties for a decade. But is it not possible that governments needlessly increase the cost of indemnity by demanding it more frequently than necessary?

It seems to me that we have carried the matter of surety beyond its logical bounds. It is illogical, and often uneconomic, to set an arbitrary limit of expenditure beyond which surety with bid and contract is required. Many reputable firms are discouraged from doing business with government, on account of the red tape requirement of submitting cash, check or bond with their bid. Their potential profit is lessened by the loss of interest on the surety during the bidding period; besides, they are put to the expense and inconvenience of preparing and submitting such deposit in proper form. Private buyers, almost without exception, regulate the surety by the merits of each particular case rather than by the amount of the expenditure involved. Private corporations seldom require surety, either with bid or contract, except on very large expenditures. If the government is safe in accepting a bid for $489 without surety, is it always necessary to vary the procedure if the sum of $501 is involved? If a reputable dealer can be depended upon to deliver one carload of coal without giving surety, why can he not be depended upon to deliver two or even three carloads without default? Admittedly, large construction contracts present a different problem. The hazards involved in a $10,000,000 highway improvement program are vastly greater than in the purchase of an automobile truck. Private buyers require indemnity on large construction contracts, and public buyers cannot afford to do otherwise. But every experienced buyer has been a party to hundreds of orders and contracts in which the surety, given to satisfy a red tape requirement of the law, was as superfluous as a chaperone at a meeting of the ladies sewing society.

Then, too, we are forced to admit that surety bonds do not always safeguard the public interests. Even though inspiring-looking documents are filed away in the government archives, defaults occur just the same. The President of one of the largest and oldest surety companies in the country reported to a conference of public officials, contractors, and surety companies in White Sulphur Springs on September 18, 1924: "Practically any contractor, whatever his financial standing, whatever his experience or lack of experience, whatever his equipment, sufficient or insufficient, whatever the relation of his liquid assets to the amount of work he has at hand, whatever the extent to which he has become over-extended, can obtain a bond. Some surety company will execute a bond for him." Standard questionnaires have been devised by the Joint Conference on Construction Practices consisting of nine national associations of public officials, construction engineers, contractors, and surety companies. These questionnaires seek to determine the bondability of the contractor. But, despite the most searching inquiry, irresponsible contractors receive surety bonds just the same. The commission given to surety agents, which runs as high as 35 per cent of the bond premium, is partly responsible for this situation. In their anxiety to get business, the salesmen often "fix it" so that their client, irrespective of his reliability, secures a bond. In 1923 a well-known surety company reported that losses through default had consumed 92½ per cent of all premiums received in that year from road contract bonds. Such losses are reflected in the premium rates which are eventually paid by the public. This is shown by the fact that the premium on contract bonds has increased over 1000 per cent in the last twenty years.

Nor is the "surety's consent to bond" the solution for reducing the cost of indemnity. This document eliminates, it is true, the expense of submitting a bond with the bid. But it presents serious hazards for both the government and the guarantor. The bonding company binds itself in the dark, often without seeing the bid of its clients or the competitive bids. The bid may be too low, in which case the possibility of default is greatly increased. This practice is closely akin to buying a pig in a poke, or selecting a wife by correspondence.

Indeed, reputable contractors have long deplored the weaknesses in present bonding practice. In their annual convention at Portland, Ore., in January, 1926, the Associated General Contractors of America adopted a resolution recommending "to owners, either public or private, that, so long as present methods prevail in this branch of the surety business, serious considerations be given to the use of other forms of guarantee for construction projects."

In March, 1926, Sullivan W. Jones, then State Architect of New York, submitted a report to Governor Smith advocating the elimination of the surety bond on future state contracts. Instead, he proposed that the state should demand a cash deposit when the contract is signed; that 20 per cent be retained on the first payment to the contractor; that the percentage retained be progressively diminished on each successive payment until, on the payment preceding final settlement, the state would retain only 5 per cent; and that the total reserve and the original deposit be paid to the contractor at the time of settling the account. THE AMERICAN CITY recommended in April, 1926, that 20 per cent of each progress payment should be retained until the reserve equaled 10 per cent of the contract price; and that thereafter each estimate be paid in full. Both of these plans seek to ease the burden imposed on the contractor by this form of surety. But, in any event, to retain a part of the payment is likely to be more costly to the contractor than is a surety bond. By this method he is deprived of a part of his working capital and may have to borrow at a high rate of interest to carry on. It is likely to be more costly to the government, also, for the expense to the contractor may be included in advance in his bid.

Obviously, then, no one is entirely satisfied with the present provisions for surety in public buying. The contractors and the surety companies are working through their organized groups to improve the situation. It remains for the governmental buyer, the other interested party, to play a supporting role.

Recommended Changes in Present Practice

Two improvements in present practice would go far toward solving the problem. The first involves a change in the purchasing law as found in most jurisdictions. I believe that the matter of surety with the bid or the contract

should be left for determination by the purchasing official, as now provided by law in Milwaukee. That city gives its purchasing agent discretionary authority not only to waive or to require surety, but also to regulate the amount thereof. This sensible law should be wisely copied. It adjusts the surety to the merits of each particular case, and sidesteps the arbitrary and illogical regulation of surety by the amount of expenditure.

If the purchasing agent cannot be trusted to safeguard the interests of the government, he should be removed from his important post. If he does not have sufficient judgment to decide when and in what amount surety is required, he is a misfit in his position. If the purchasing agent cannot be vested with sole responsibility in this matter, let him secure the concurrence of the city comptroller, as in St. Louis; or of the mayor and comptroller, as in St. Paul.

The second needed improvement does not involve a change in law, but a change in its interpretation by the purchasing agent. The purchasing agent should assist the surety companies in determining the bondability of contractors instead of relying upon the submission of a bond as proof of responsibility. Let us take a leaf from the experience book of the Delaware State Highway Department. In the report referred to above, the Chief Engineer of that Department stated that during 1923 and 1924 the state had awarded contracts aggregating over $6,000,000, without a single default. "This record is the result of thorough and careful investigations made by the Department, of each contractor's financial condition, his previous experience, his former record and the equipment he possesses, before an award is made and he is entrusted with the responsibility of proceeding with the work." As a result of this record, he recommended that the State Highway Act be amended to give "the State Highway Department the right to award without surety in those cases where the low bidder is considered to be altogether reliable."

Even though lacking such wide discretionary authority in law, public officials are nevertheless vested with certain responsibility by the requirement for awarding contracts to the "lowest *responsible* bidder." The most irresponsible contractors are often the lowest bidders. Hope seems to spring eternal in the contractor's breast; and the more *irresponsible* he is, the farther it generally springs. Through investigation of the bidder's financial status and his performance record, we may establish that the low bid is the worst bid, since the possession of a bond is no guarantee of ability to perform the contract. The public official should determine the lowest responsible bidder only after fully weighing all the factors involved.

Abundant juristic support may be found for the use of such discretion by public officials. To cite only one case, the Supreme Court of Pennsylvania held in *Hibbs* vs. *Arnsbern* (119 Atlantic 727) that "the term 'lowest responsible bidder' does not mean the lowest bidder in dollars; nor does it mean the Board may capriciously select a higher bidder regardless of responsibility or cost. What the law requires is the exercise of a sound discretion by the Directors."

They should call to their assistance the means of information at hand to form an intelligent judgment. They should investigate the bidders to learn their financial standing, reputation, experiences, resources, facilities, judgment and efficiency as builders. This was not done. The Court below censured the Board for omitting this important step, but it holds, inasmuch as they had ample knowledge of the successful bidder and the merits of his work, the contract could be awarded. This might do in private affairs, but will not pass when public funds are at stake; it is not the exercise of discretion. Though the Directors were not bound in law to give the contract to the lowest bidder who might be responsible, they were bound to investigate, and if a bidder measured up to the law requirements as a responsible party, the Board could not capriciously award the contract to another. Giving a bond alone does not make up for responsibility." If the advice of the court were followed in *all* instances, surety would in *some* instances be unnecessary.

The Associated General Contractors of America, after exhaustive study, have recommended that public officials should require contractors to demonstrate their responsibility before submitting bids. Qualifying in advance spares the contractor the considerable expense of preparing estimates and bids which will ultimately be thrown out, and it insures that all bids submitted are "responsible." The Association has prepared "Standard Questionnaire and Financial Statement for Bidders" and a tabulation of court decisions interpreting the word "responsible" and defining the discretionary authority of public officials. Copies of both documents may be secured without charge from the Association's headquarters, 1150 Munsey Building, Washington, D. C.*

* See also the article entitled "How Shall the Lowest and Best Bidder for Public Works Be Selected?", in THE AMERICAN CITY for June, 1928, page 125.

Ourselves and Europe as Others See Us—at Play

"OUTDOOR gymnasiums under skilled teachers" are one of the outstanding attractions of American cities as seen through the eyes of a visiting Australian municipal official.

This official, A. E. Aughtie, M. Inst. C. E., City Engineer, South Melbourne, gives an account in a recent issue of the *Australian Municipal Journal* of "Parks, Reserves and Playgrounds" as he observes them in Europe and in America. This is one of a series of articles presented not as detailed, comparative, official reports, but simply as the observations of an engineer on holiday.

"I would regard Los Angeles City as probably the most highly developed in the playground and recreation movement," he records. And, after giving a brief history of the movement there, he comments further:

"Music, drawing, handcraft, and art activities are also finding an important part in city play programs. The department has also provided increased service for adults, and most of the playgrounds now include gymnasium classes for housewives in the mornings, evening gymnasium classes for men and women, large community club halls for adults where billiards, dramatic activities, community singing, etc., are enjoyed; also a municipal men's club and many swimming pools."

Los Angeles pioneered in the municipal camp movement, Mr. Aughtie reported, and now operates a number of such camps on a cost basis, while over 80 cities operate municipal summer camps.

"Park lands in the leading American cities," he says, have not the parklike attractions of the principal London grounds, yet some great areas exist in the cities I visited."

However:

"There is one lesson to be learned from American playground experience, and that is the advantage of organized play and selected, capable, sympathetic leadership.

"In some of the Italian cities, avenues of chestnuts and oriental planes grow profusely, and the promenades on the lake frontages in Switzerland are made very beautiful by the culture and care of the trees.

"In these cities and in the English parks, I was very much impressed with the absence of wanton destruction. Civic pride appears to be developed in the citizens very largely. . . . Children are at play everywhere, but there is no vandalism, as exists so often in our reserves. I did not ascertain whether the punishment is made to fit the crime, or whether the educational system includes the teaching of 'civic pride,' but we can surely profit from the example.

"The treatment of the public gardens in Italy and Switzerland is very similar, and consist in many cases of close forest planting with shade trees and winding paths. The Bois de Boulogne in Paris is a splendid area, and the parks of London are never to be forgotten. . . . But although London possesses such an asset in its great reserve areas, the urge is constantly for the acquirement of more."

Municipal Leadership in City Beautification

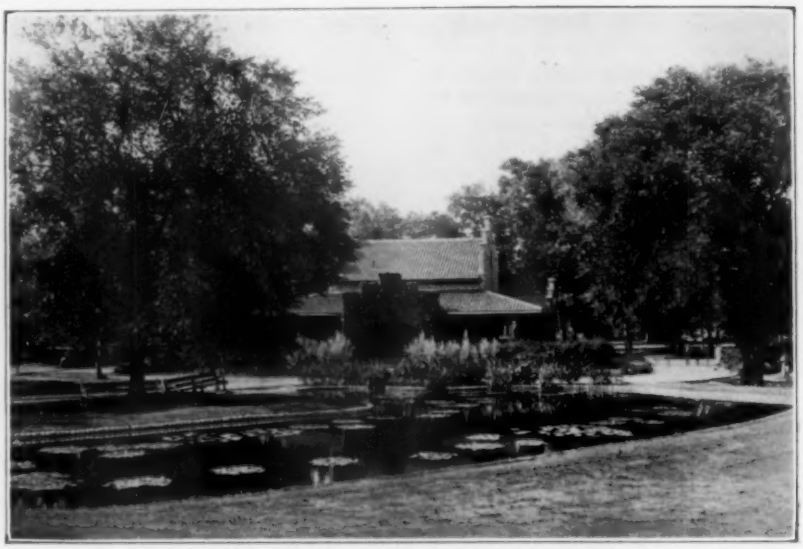
By ALFRED MACDONALD
DIRECTOR OF PARKS AND FORESTRY, WICHITA, KANS.

SOME cities are favorably known because of their splendid and abundant water-supply, others because of their good streets and boulevards. But fortunate indeed is the city which is favorably known because of its beauty, because a city is made beautiful by the civic interest and civic pride of its citizens.

A beautiful city will attract new business. A beautiful city will attract those who have accumulated money and property and who wish a place to retire to from active work. A beautiful city will attract those who have money to invest. But most important of all, a beautiful city is the best possible place wherein to live happily.

And just what is a beautiful city?

It is not necessarily a city in which there has been a lavish expenditure of money for public buildings. It is not necessarily a city of expensive homes. Its essentials are its cleanliness and order, its shade trees, its parks and open spaces, its lawns and flowers, and the ornamental planting about the homes of the residents.



PARK VILLA, NORTH RIVERSIDE PARK, WICHITA, KANS.

The City's Official Responsibility

The city government itself, through its public officials, should not only cooperate with other agencies interested in the city beautiful, but should take the lead in promoting such projects. There are certain responsibilities which only city officials *can* take for city improvement along esthetic lines. Certain of these improvements are recognized by the laws of the state of Kansas as being necessary and desirable; certain of them are made mandatory in cities of certain classes. For example, the statutes require that a city of the first class shall, if it has a population of more than 50,000, maintain a system of public parks.

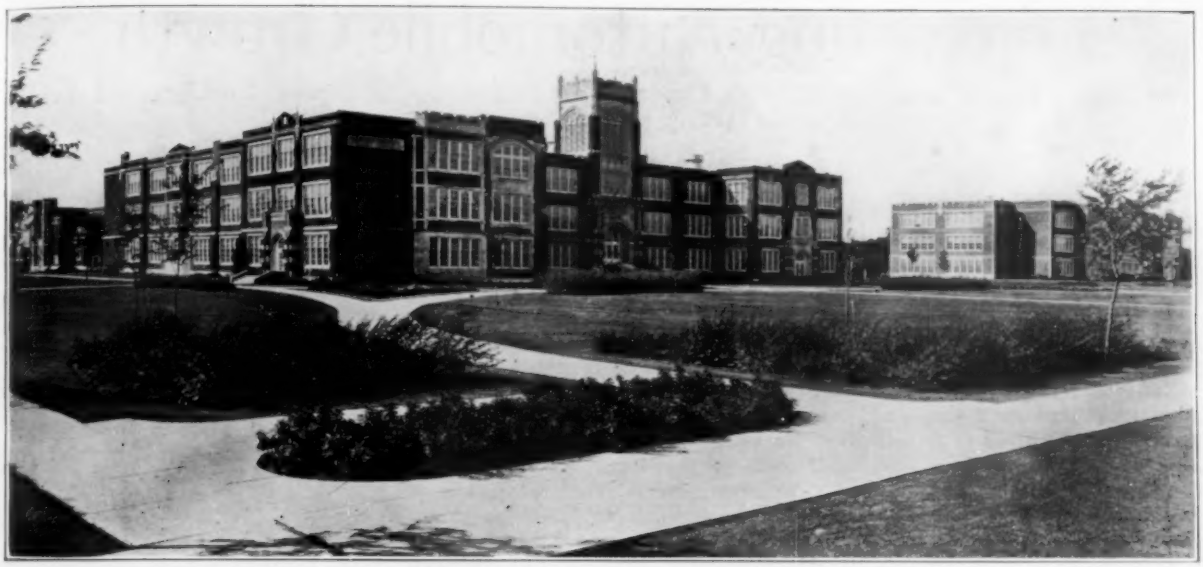
BATH-HOUSE AT THE MUNICIPAL BEACH IN SOUTH RIVERSIDE PARK, WICHITA

The city parks should, first of all, be places for the people to use. There is a growing interest, not only in Kansas but all over the country, for facilities for public recreation. Municipal tennis courts are being built, municipal golf courses constructed. The placing of all of these highly desirable recreational features in the public parks, however, is not necessarily incompatible with beautiful parks. In fact, both the interests of recreation and of beautification can be well served simultaneously. Tennis courts and swimming pools can be beautified by planting, golf courses afford beautiful stretches of green that are restful to the eye, and there are always certain park areas that can be given over entirely to ornamental planting.

The demand for greater recreational facilities in cities need not be looked upon as necessarily impairing the beauty of parks. It should rather be considered the opportunity for acquiring additional and greater grounds for the creation of beauty-spots that would not otherwise be possible.

The Public Parks and School Grounds a Stimulus to Home Beautification

The public parks of the city should provide models for landscaping, and should furnish examples of the trees and



THE GROUNDS OF THE WICHITA HIGH SCHOOL WERE LANDSCAPED BY THE CITY PARK BOARD UNDER A COOPERATIVE ARRANGEMENT WITH THE BOARD OF EDUCATION

shrubs that will grow successfully in the section. There is no better way to encourage the growing of trees and shrubs and the planting of flowers on private grounds than by practical demonstrations carried on in the parks. The people of your city will soon come to your parks if you give them occasion, just as the people of my city come to our parks, notebooks and pencils in hand, to inquire the names of beautiful plants so that they may get the same kind for planting about their own homes.

At our park office in the city building in Wichita, it seems to me that never more than five or ten minutes go by without somebody calling up for advice on landscaping or garden problems, or for information about plants and shrubs seen growing in our parks.

Shade trees are among a city's outstanding assets, and it should be the duty of some officer to see that the street trees are not mutilated, and also that when trees require trimming or become broken and dangerous, proper care is given them. Such work may be entirely financed by the city, it may be financed by the property owners, or it may be financed partly by the city at large and partly by the owner of the property in front of which the trees stand.

School grounds lend themselves to beautification, and such beautification has a far-reaching and sometimes unforeseen influence upon the life of schoolboys and girls, and through them, upon the whole community.

In addition to the park and school grounds which a city may own, there are generally other public grounds which can be made attractive by landscaping. Take, for example, the grounds of the public library, those surrounding fire-stations, and water-works and other utility plants. The best way for city officials to cooperate in the movement for city beautification is to furnish practical examples of what can be done by the proper landscaping of all the above-mentioned properties. Almost no city is without areas that can be improved by grass, trees, and ornamental plants. In many cities there are parked strips down the middle of the streets that are allowed to grow up in weeds. With a comparatively small expenditure, these areas can be surrounded by plants and flowers. The best way to get a community to commit itself to a policy of beautifying is to provide just such public examples of what can be done.

Cooperate with improvement associations, garden clubs, parent-teacher associations in their work of city beautification. Some one of these organizations would like to finance the improvement of some ugly spot in your city that has been giving you, as a public official, considerable concern. If you can arouse interest in the beautification of just one spot by one organization, the interest will be certain to spread. Cooperate with your garden club in putting on a flower show once or twice a year. Cooperate in city clean-up and paint-up campaigns, for a beautiful city must be, first of all, a clean city. And, above everything else, cooperate with your city plan commission.

Recreating the Past in Moving Pictures

WHILE important woman's organizations in various sections of the country are making protracted studies of the child and the movies, while university seminars are being conducted on the subject, and while questionnaires are being circulated among the august membership of national cultural organizations regarding the silver screen as a present or potential art medium, the Metropolitan Museum of New York City is quietly going ahead as it has for several years with a new use of the motion picture camera which in the interest of art, education, and recreation, is beyond discussion. The purpose of this project, under Huger Elliott, Director of Educational Work for the Museum, is to bring the past splendidly to life again, with its art, its work and its worship—Egyptian life along the Nile, the Golden Age of the Greeks, the Middles Ages. Scenes are being re-created from life and from literature, not with department store "period furniture" a la Hollywood, but with the treasures that have come to us down the ages as settings and properties.

One of these films, being made this summer, depicts the beautiful classic dances of Greece, as given by Mme. Eva Sikelianos, the young Grecian woman who with her husband has done so much to restore the original significance to the ancient festivals of her native land and revive them in the ancient setting. The dances as presented here interpret portions of "Prometheus Unbound," and the accompanying captions are entirely from Shelley's great poem of that title. "The Hidden Talisman" has been filmed against the background of the medieval Barnard Cloisters, which were brought from Europe and are now the property of the Museum. One of the nine pictures completed re-creates for curious youth the atmosphere of romance and high adventure of the days "when knights were bold," having been developed to dramatize the wealth of material in the armor galleries and use it for revitalizing one of the great periods of history.

As these pictures are completed, they are made available to educational and civic groups on a strictly non-commercial basis for the nominal rental of $5.

Forecasting Automobile Growth

An Aid to Long-Term Construction Programs for Increasing the Speed, Comfort and Safety of Motor-Vehicle Operation

By ROBERT WHITTEN
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IT has been established by studies made by the United States Bureau of Public Roads that the average volume of traffic over any considerable area, such as a state or a large metropolitan district, increases directly as the motor-vehicle registration of the area. Also, studies made for the Boston Metropolitan Planning Division by the author indicate that, at any given time, traffic between any two communities in a metropolitan region varies directly as the product of the motor-vehicle registrations of the communities and inversely as the square of the distance between them. It is clear, therefore, that to forecast future traffic in any area it is first necessary to estimate the future motor-vehicle registration.

Automobiles and Population

One way to forecast the growth of an artificial phenomenon is to establish its relationship to some natural phenomenon that grows in accordance with rather well-defined laws. In the case of the motor vehicle, population is the most obvious thing with which to attempt to establish a relationship, and the relationship that it is most convenient to study is the number of motor vehicles per 1,000 persons.

On chart I are shown the curves of motor vehicles per 1,000 persons for the United States and for various individual states from 1913 to 1927. The curves are drawn on a semi-logarithmic scale, but have been moved vertically to show to better advantage the slope of the individual curves. The curves show the relative rates of growth in the various states, but indicate nothing as to the actual magnitudes. While the curves have been moved so that they do not bear a true relation to one another except as to slope, they have been arranged as they stood in 1927 with the highest, California, at the top, and the lowest, Tennessee, at the bottom. The number of motor vehicles per thousand persons in these states in 1927 was as follows:

California	383.0
Ohio	237.5
United States	194.7
Massachusetts	192.1
New Jersey	190.1
Connecticut	179.5
New York	170.5
Pennsylvania	163.7
North Carolina	152.0
Tennessee	123.5

California has more than three times as many motor vehicles per thousand persons as Tennessee; two times as many as New Jersey; and 1.6 times as many as Ohio. There is a wide variation in cars per thousand persons. The conditions causing these variations have evidently remained fairly constant since 1913, as the curves for the various states are nearly parallel. It may be assumed, therefore, that these differences are due to varying economic conditions and varying opportunities for utilization of the automobile and are apt to persist in the future, so that each state will have a different saturation point or economic limit.

The Curve of Increase Approaches a Limit

It should be noted that the curves are all approximately parallel. More interesting, however, is the fact that each of the curves seems to be made up of three parts. Notice the curve for the United States, in which this characteristic is most pronounced. The trend is a straight line from 1913 to 1917; another straight line with a lesser slope from 1917 to 1923; then in 1923 it becomes a different type of curve; and instead of following a straight line, the slope each year is less than that for the preceding year. The curves for the individual states show more irregularities, caused by local conditions (such as compulsory insurance in Massachusetts), but in general they follow the shape of the curve for the United States.

What do these curves show? The scale, it should be remembered, is semi-logarithmic, so that the straight line from 1913 to 1917 indicates that the number of motor vehicles per thousand persons increased at a uniform percentage rate during this period. In 1917 the United States entered the World War. This did not cause a change in the nature of the increase; it continued at a uniform rate, but it did lower the rate of increase. In 1923, however, something different happened. Apparently, the turning point in the increase in automobiles with respect to population was reached in that year, and thereafter the increase has been at a constantly decreasing rate. Now, when anything increases at a decreasing rate, it is approaching a limit. If the increase at a decreasing rate has been going on for a sufficiently long time so that the rate of decrease in the increase can be found, the limit can be determined. In this case, however, we have only four points since 1923, so that the trend indicated must be used with caution.

Projecting the Curve

Up to the present time the curve of growth has resembled that of various organisms and is similar to the Pearl-Reed curve of population growth. (See Chart III, which shows the figures for the United States since 1905 plotted on a natural scale). The Pearl-Reed curve is symmetrical about the point of inflection; that is, if the lower asymptote is zero, as of course it is in this case, the upper asymptote, or limit, will be twice the value at the point of inflection. There are reasons for expecting some degree of similarity in the curve of motor vehicles per thousand persons. Up to the time when half the possible purchasers of automobiles have been supplied with cars, each sale will make it easier to make additional sales, but after this point has been reached, each sale will make it harder to make additional sales. The number of cars per thousand persons will increase by an approximately constant percentage up to this point, and thereafter the annual increase will be at a constantly decreasing percentage rate.

On the basis of these assumptions, the upper limit would be 272.8, twice the number in 1923, the point of inflection; and the values for 1923, 1924, 1925, and 1927, when subtracted from 272.8 and plotted on semi-log paper, should approximate a straight line. On Chart II the number of motor vehicles per 1,000 persons in the United States from 1905 to 1927 has been plotted on a semi-log scale. Fitted through the points are the straight lines showing the rate of growth from 1905 to 1917 and 1917 to 1923. In addition, there is plotted 272.8 minus the number of motor vehicles per thousand persons for the years since 1923. It will be noticed that these points do very clearly lie along a straight line. This line has been projected into the future and from it may be read the difference in any given year from the upper limit. Subtracting these differences from the upper limit, we get the number of motor vehicles per thousand persons for each year to 1955. The curve has been extended as a broken line on this basis. Chart III shows the same curve plotted on a natural scale.

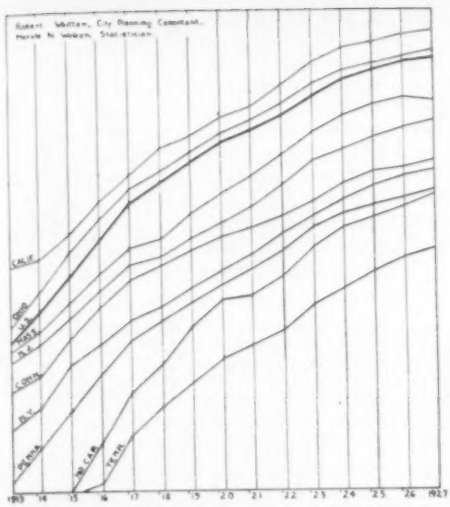


CHART I.—MOTOR VEHICLES PER THOUSAND PERSONS IN THE UNITED STATES WITH FORECAST TO 1955

No vertical scale is shown, as the curves have been moved up or down to prevent their crossing and re-crossing each other. The vertical scale is logarithmic, however, so that the rates of increase may be compared, though not the actual magnitudes

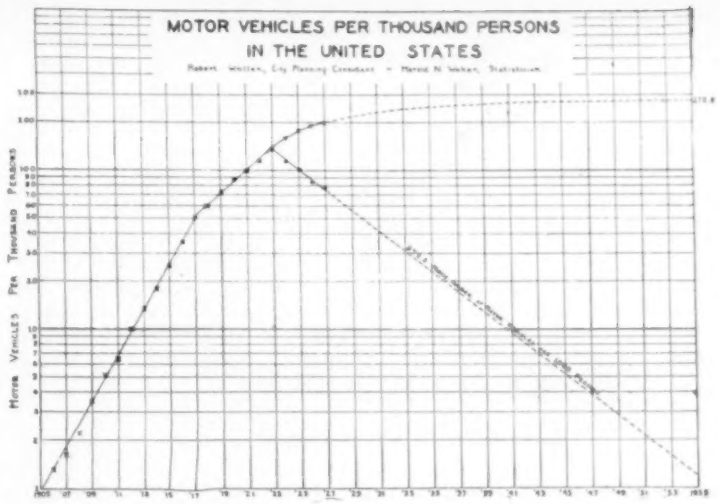


CHART II.—MOTOR VEHICLES PER THOUSAND PERSONS IN THE UNITED STATES
(Semi-logarithmic scale)

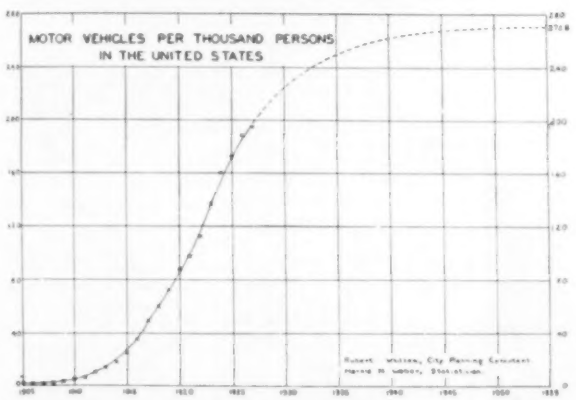


CHART III.—MOTOR VEHICLES PER THOUSAND PERSONS IN THE UNITED STATES
(Natural scale)

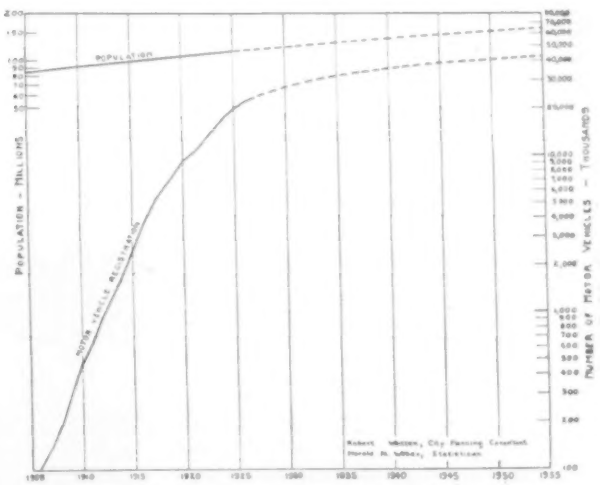


CHART IV.—POPULATION AND MOTOR-VEHICLE REGISTRATION OF THE UNITED STATES WITH FORECAST TO 1955
(Semi-logarithmic scale)

It should be noted that while the upper limit of 272.8 motor vehicles per thousand persons, or 3.7 persons per car, will theoretically never be quite reached, the approach to it by 1945 will be so close that for all practical purposes we may say that the economic limit will be reached by that year and that thereafter the number of motor vehicles will increase only as population increases. Moreover of the total increase in the ratio of cars per thousand persons, 77.8 per cent will occur within the next ten years, or by 1937.

Forecasting Total Registration

Using a forecast of population of the United States made by E. P. Goodrich, and the figures for motor vehicles per thousand persons computed as just described, a forecast of the motor vehicle registration of the United States was made. This is shown on Chart IV together with the curve for population. The curve for motor-vehicle registration has been moved up to bring it closer to the population curve, but the scales for each curve are shown on opposite sides of the chart. Notice the extremely rapid increase in the number of motor vehicles as compared with population, the moderate slowing down in 1917, and the beginning of the trailing off in 1923—the two curves eventually becoming parallel.

POPULATION AND NUMBER OF MOTOR VEHICLES IN THE UNITED STATES WITH FORECAST TO 1955

Year	Population	Motor Vehicles: Number of Motor Vehicles	Motor Vehicles: per Thousand Persons	Persons per Motor Vehicle
1900	75,995,000	8,000	0.11	9,499.4
1905	83,984,000	78,000	0.93	1,076.7
1910	91,972,000	468,500	5.1	196.2
1915	99,195,000	2,445,656	24.7	40.5
1920	105,711,000	9,231,941	87.1	11.5
1925	115,378,000	19,937,274	172.7	5.8
1930	120,200,000	26,973,000	224.4	4.5
1935	128,000,000	31,936,000	249.5	4.0
1940	135,800,000	35,525,000	261.6	3.8
1945	143,000,000	38,210,000	267.2	3.7
1950	152,200,000	41,155,000	270.4	3.7
1955	160,850,000	43,687,000	271.6	3.7

The Traffic Problem Need Not Be Staggering

It seems probable, as shown by Chart IV, that by 1955 there will be 43,687,000 motor vehicles in the United States, or 3.7 persons per car. While this indicated increase during a period of 28 years is sufficient to warrant careful street and highway planning to provide adequate roadway facilities, it does not present a problem so huge as to suggest staggering financial burdens for any community. By visualizing its traffic problem over a period of 25 or more years, any city can provide a long-term construction and financial program that will be within its means and will not merely prevent traffic difficulties from becoming worse but will greatly increase the speed, comfort and safety of motor vehicle operation.

Neighborhood ClubThat Meets Growing Needs

"TO foster conditions that widen the horizon of others and give them command of their own powers so that they can find their own happiness in their own fashion, is the way of 'social action.'"

The way of social action, according to this definition by an eminent educator, Professor John Dewey, is also the way of the Neighborhood Club of Grosse Pointe, Mich., as exemplified through its programs of recreation and education being carried on in its new building. According to the records and reports, this structure is a model of modern community center planning and administration.

It was erected and furnished in 1927, at a cost of $175,000, raised by popular subscription. The site, which includes spacious playing fields for soccer, baseball, basket-ball, and soft ball, as well as tennis courts and a small children's playground, was the gift of a prominent citizen, Dexter M. Ferry, Jr.

The launching of a complete program of activities in this building marks a climax in the sixteen-year history of achievements of the Neighborhood Club. These achievements, according to the recent annual report of George W. Elworthy, the Club director, started in 1909, when the Club began, in a rented house, giving such services as health nursing and domestic science teaching. As the Grosse Pointe village assumed these functions, the Neighborhood Club shifted its activities to pioneer in other fields and meet other still unmet needs. For many years, the gymnasium which it was responsible for starting was the only recreational center in Grosse Pointe.

The Club now provides facilities for every sport in its season. Basketball, boxing and winter outdoor sports are available for both boys and girls. An annual skating meet was introduced in 1927. Spring interests include marble tournaments, kite contests, and various exhibitions of needlework by junior sewing clubs. During outdoor months, basket-ball, and supervised recreation and handcraft work on the playground attract strong followings. Camp life, with swimming, life saving, first aid and canoe-handling instruction on Lake Ore, contribute to the "full life, lived well and wholesomely" of the Boy Scouts and girl V. V. V.'s (this is the star basketball team of the Athletic League).

Mr. Elworthy's tabulation of last year's Club activities shows an attendance of 32,445 at 726 meetings of 14 clubs and 9 outside organizations that have made use of the Club's facilities. A total of 8,327 volumes were drawn from the library, and 91 athletic events, 178 educational meetings, and 19 social events were held during the year.

A concrete idea of what these figures mean is gained from a week's program of events, which includes the following items:

MONDAY

2:30 P. M.—Edison Company—Basketball
7:00 P. M.—Basketball League (Boys and girls)
8:00 P. M.—Dramatic Club

TUESDAY

3:30 P. M.—Intermediate Boy's Club
6:30 P. M.—Midget Boys—League games
7:30 P. M.—Chauffeurs' Basketball practice
Boy Scout Meeting (Boy Scout Room)
8:00 P. M.—Glee Club (Assembly Room)
8:45 P. M.—Boy Scouts Gymnasium Class

WEDNESDAY

3:30 P. M.—Sacred Heart Academy Girls
6:30 P. M.—Neighborhood Athletic Club
8:00 P. M.—Men's Gymnasium Class Chauffeurs' Club Meeting ((Assembly Room)

THURSDAY

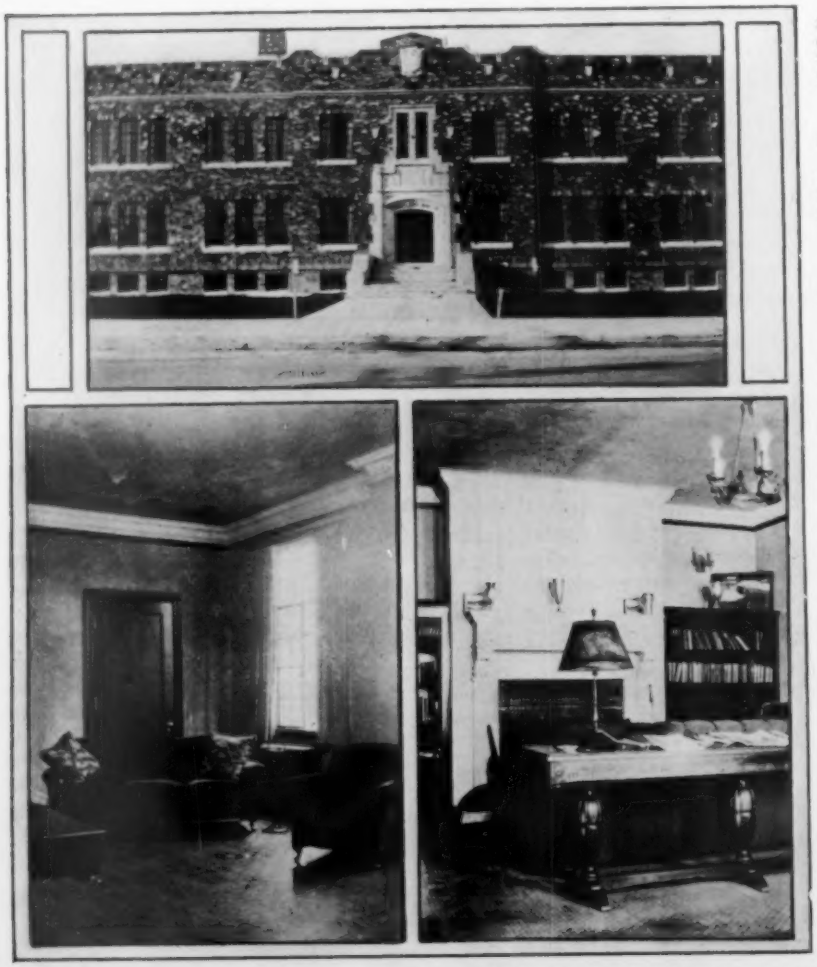
3:30 P. M.—Junior Girl's Gymnasium
6:30 P. M.—Junior Boys' Gymnasium
7:30 P. M.—Camp Fire Girls Meeting
8:00 P. M.—Camp Fire Girls in Gymnasium
8:00 P. M.—Gardeners' Club Meeting
9:00 P. M.—Detroit Motorbus Company

FRIDAY

3:30 P. M.—Sacred Heart Academy Girls
6:00 P. M.—Boys' Club
7:00 P. M.—Women's Gymnasium Class
9:00 P. M.—V. V. V. Girls Athletic Club

SATURDAY

10:00 A. M.—Junior Boys' Gymnasium Class
Grosse Pointe School of Dancing
1:00 P. M.—Neighborhood Athletic Club
2:00 P. M.—Blue Bird Club
8:00 P. M.—Community Dance



THE GROSSE POINTE COMMUNITY CENTER AND ITS BOARD ROOM AND LIBRARY

Even since the Club has been settled in its spacious new quarters, need has constantly been found for broadening activities to meet newly arising opportunities. One of the most recently reported developments is a group formed to provide wholesome recreation for small boys. The gymnasium is reserved on Saturday forenoons from 10 to 12 for this purpose, and basket-ball, volley-ball, and other athletic games are played under supervision. A checker tournament is another feature of the recreation planned in their behalf. The club is living up to the practical ideals which it should, in the words of the recently retiring President, Mrs. Jesse Carter Sales, try to maintain: "A place where rich and poor may meet together as brothers and where no one will be barred who needs what the club can give."

The Community Center budget for 1928 is $20,892, a part of which is paid by Club profits in the form of self-supporting activities, etc., with the operating deficit underwritten by the Detroit Community Union.

The Neighborhood Club's civic projects extend far outside the building and its operations and programs. An outstanding endeavor for the immediate future is the provision of materially increased playground facilities for the township.

Bridge and Culvert Maintenance Equipment

By JAMES C. McLEAN
COUNTY ENGINEER, SIOUX CITY, IOWA

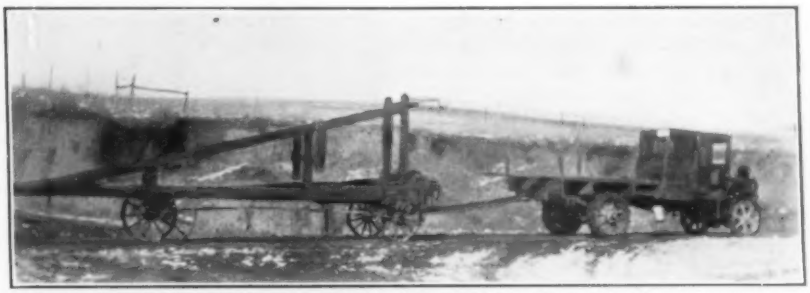
THE selection of bridge and culvert maintenance equipment is a phase of the equipment problem that has perhaps not been given the consideration which its importance warrants. Too frequently our highways are considered as so many miles of paved, gravel or earth roads, as the case may be, and an equipment schedule is worked out for their upkeep, with little or no attention paid to the drainage structures. There is, perhaps, no part of the highway that requires more frequent inspection than the waterways, and it is essential that provision be made for their maintenance with satisfactory equipment.

Bridge and culvert maintenance equipment can be classed under two headings: equipment for the maintenance of permanent bridges and culverts; and equipment for the maintenance of temporary bridges and culverts.

On permanent structures there is a variety of maintenance work which ocurs with more or less regularity, requiring special equipment, which, unless provision is made for it, would be difficult to obtain.

Concreting

Waterways, in many cases, are deepening and widening, requiring the extension of existing concrete culverts, the construction of aprons, the building of protecting curtain walls on abutments that are being undermined, repairing concrete rails that are being destroyed by collisions; all these require equipment suitable for the mixing and placing of concrete in comparatively small quantities. A batch mixer, preferably of one-sack capacity, is well suited for this work; with the engine, it can be mounted on a truck so that it will be readily portable. A loading skip, while it will increase the initial cost of the mixer somewhat, will more than pay for itself if there is any considerable amount of work to be done. As auxiliary equipment for concreting operations, a light 1- or 1½-ton truck is required, equipped with a dump body for hauling aggregate, cement and other supplies. A water-tank mounted on wheels, a bar cutter and bender, shovels, picks, spades and small tools are also required.



PILE DRIVER MOUNTED ON WHEELS AND PULLED BY A TRUCK FOR BRIDGE MAINTENANCE WORK

There will at times be concrete work of a heavy nature for which the above equipment would not be adapted. These jobs are exceptions, however, and can be better let out on contracts than handled by the regular maintenance crew.

Painting

Where structural steel is used in combination with concrete and portions of the metal are exposed to the elements, painting will be necessary at intervals of five to eight years. Because of the infrequency of this operation, equipment for handling it would be acquired, perhaps, just prior to its use. This includes steel brushes, metal scrapers, painter's torch, and, if need be, a sand-blast for preparing the metal. Brushes for applying the paint should preferably be of the round variety, of ample size, and include a brush or two with long handles so that the more inaccessible places may be readily reached. The higher structures will require hooks, block and tackle and a scaffold for work on the trusses and floor system.

Bituminous Materials

Concrete floors on permanent bridges require little attention other than making provision for equipment to handle the expansion joints. When they are covered with a bituminous mat coating or asphalt wearing surface, the selection of special equipment again becomes desirable.

In handling any of the tar products for maintenance work, a small two-wheel kettle of about 110 gallons capacity is suitable. It should be of the portable type, so built that it can be readily moved from place to place, and equipped with a fire-box for wood burning or an oil heater. A light truck will also have to be available with this outfit, for transporting tools, tar and aggregate and hauling the kettle. Supplemental equipment will include pouring-pots, preferably of the narrow, deep variety, so built that they will retain the heat, a small hand roller or a substitute, tampers, rakes, square pointed shovels and hand tools.

Equipment for the repair of an asphalt wearing surface should also be of the portable variety and equipped with oil burners. Provision should be

PORTABLE TOOL CARRIER USED BY BRIDGE AND CULVERT MAINTENANCE CREW

made for heating the asphalt and the aggregate in separate compartments, with the mixing to be done by hand. This should be accompanied by a portable tool heater of the oil-burning variety and a light truck for hauling the materials and heaters, together with the small tools such as tampers, smoothers, rakes, picks, shovels, brooms and squeegees.

A part of the equipment heretofore specified for maintenance work on permanent bridges is also suitable for use on temporary structures, such as the painting equipment and the equipment for repairing bituminous mat and asphalt wearing coats.

TOOL CARRIER AND TRUCK USED IN BRIDGE AND CULVERT MAINTENANCE

Temporary Structures

In addition, the temporary structures will require a full set of the usual bridge repair tools, such as drills, jacks, saws, crowbars, sledges, axes, shovels, picks, etc., which, because of their variety and bulkiness, should be kept in a special tool box built for the purpose and mounted on wheels so that it can be pulled from place to place. A heavy truck of from 2 to 3 tons capacity should also be supplied for hauling timber, plank and piling. A pile driver with leads from 24 to 30 feet long, and a hammer weighing from 1,200 to 1,600 pounds, will complete the outfit.

The equipment will handle the ordinary bridge maintenance work, such as repairs to wings and floors, pile driving and the addition of approach spans. Work heavier than this, it is assumed, will be contracted.

The foregoing and the following article were prepared from the report of the Committee on County Construction and Maintenance Equipment, E. L. Gates, Chairman to the American Road Builders' Association Convention at Cleveland.

Construction Equipment for Gravel Roads

By D. L. McLEOD

HIGHWAY SUPERINTENDENT, MITCHELL, S. DAK.

THERE are several makes of equipment for loading gravel from different pits. We find in South Dakota that a first-class gravel road depends largely upon the quality and uniformity of pits. Where a pit furnishes a gravel of good quality with a uniform run the entire depth of the pit, the material may be loaded with almost any make of machinery very satisfactorily. Pits having several veins of material running from coarse to fine at intervals are more satisfactory if the material is taken out by machinery working against the bank vertically. This insures a well-mixed material, which in return gives a better surface and longer wear and costs less to maintain and repair.

BARBER-GREENE LOADER WORKING IN GRAVEL PIT, LOADING AND SCREENING IN ONE OPERATION

The rotary screen has proved to be the most satisfactory method of separating the oversize from the gravel. Where oversize is greater than 5 per cent, the loader and crusher combined makes a successful machine and the product from such a machine makes very good material for road surfacing.

The best results are obtained by thoroughly testing out the pits, giving the road official a good idea of what they contain and the type of machine required to give the best results. Hopper storage bins are used successfully and to advantage on most loading machines.

The High Cost of Lamp-Posts

IN the good old days, lamp-posts were used mostly in the daytime for hitching the mare while Ma and Pa did their shopping. Today they serve as brakes for some motorists, especially drunken drivers, inexperienced operators and one-armed steerers. In New York City alone replacement of these devices costs about $18,000 annually. The costs usually are collected from offenders, about sixty per cent of whom are drunken drivers, or their estates.

—NATIONAL SAFETY COUNCIL.

Spreading the Gospel of City Planning

By JUSTIN F. KIMBALL

THERE is a notion abroad in our land that free public education of all the people is an American invention peculiarly our own, a unique characteristic of our democracy. Such is not quite the case. The idea of general education by the state is an ancient one. Some of the greatest free school systems have been found in autocracies and aristocracies. The most efficient public school system the world has ever known was in an autocracy that educated each class of its citizenship carefully, painstakingly, and adequately for intelligent productive service in the sphere of life into which "it hath pleased God to call them."

However, there is one phase of public education which is peculiar to a democracy: in order to exist, this type of nation must educate generation after generation of *citizens* trained to rightly exercise sovereign powers in statesmanship. The public schools of America are not charity, princely as their beneficence is when considered as eleemosynary institutions; they are not primarily business investments, though the dividends paid to national wealth and income by increasing the intelligence of a nation's people are vastly greater than the increment from any other type of financial investment; the public schools of America exist primarily for the purposes of defense of the realm, for self-perpetuation of the state, for an insurance policy against the menace of an ignorant citizenry. The first and chief desideratum of the American public school system is an intelligent citizenship, informed as to our institutions and our problems, and interested in the public welfare and public safety. No public tax-supported school system with its millions of maintenance from the public treasury can justify its existence for a single day unless the human output of that system be trained both in knowledge and in attitude to grapple patriotically and intelligently with the problems of citizenship. And this citizenship for which these public school boys and girls are to be trained—if the public school has any right to exist—is no dead academic dry-as-dust affair of the classic past; it is a citizenship of and for today, as lively an adventure in statesmancraft as this old world of ours has ever known. This means that the public schools must escape the dead hand of traditional academic scholarship; that history must be studied, not for history's sake, but for the sake of today's and tomorrow's needs.

This American citizenship in actuality is always in a local setting, frequently an urban setting, and always facing definite local problems. The training for this citizenship should likewise be always in touch with actualities.

The Significance of Local Citizenship

There is no intellectual deprivation in this; in all the history of the world, in Athens at her highest, in Rome at her mightiest, there has been no other citizenship so interesting and stimulating from an intellectual point of view, so manifold and varied in appeals to social and scientific interests, so intricate in functions and relationships as a modern American city in this twentieth century. The public problems of citizenship in a great city of today are infinitely more intricate in detail, vaster in volume, more exacting in foresight, more delicate in human adjustment, than those of many sovereign states. The problems of citizenship and statesmanship of the state of Nevada, for example, shrink into a second place when compared to those of the city of Chicago, in type, in immensity, and in significant meaning to the future of civilization.

Yet in all these matters the great essential problems of citizenship remain at base the same—what to do, how to vote, whom to trust, and how to make our countryside, our village, our town, our city, our county, our state, a good, safe, sane, beautiful, wholesome, attractive, stimulating place in which to live with one another without trespassing on one another.

> **Teaching Good Citizenship to the Boys and Girls**
>
> ***The former Superintendent of the Dallas City Schools, who presented the accompanying paper at the National Conference on City Planning last month, is the author of "Our City—Dallas." This book on community civics was published last year by the Kessler Plan Association, of Dallas, as the basis of a new campaign of civic righteousness in general, and specifically as a textbook for use in the schools of the city and county. The book is one which might well serve as a model for similar undertakings in civic education in other cities.***

Judging by the cityward trend of Americans for the last hundred years, the most important consideration in the curriculum of most of our American public schools is a study and understanding of those problems that have come to be known as city planning, but which pertain with equal force and logic to the countryside. No more suitable subject can be conceived wherewith to meet the aims and justify the existence of tax-supported schools. Incidentally, it is infinitely better psychology to study live material of this type than to place in the hands of young Americans studies whose chief merit would seem to be Mr. Dooley's criterion: "It makes no difference, Hinnessey, what you teach a boy so long as he doesn't like it."

The disappearance from many American schools of the old "civil government" courses, and the increasing development of courses in "community civics," often with reference to local problems, indicate the immediacy of the opportunity among American schools. The need of such courses is infixed in the very genius of the institution itself.

Building the Future City in the Mind of Youth

What has this to do with the National Conference on City Planning? If you are to serve your nation and your generation most widely and most wisely with those ideas which are your own peculiar contribution to our civilization, then it is necessary that you intrust them to the mind of youth. The place to preach the gospel that better cities cost less if wisely planned is in the American high schools. Establish the right mind-set before the ideals of civic beauty are warped by selfish interest in the exploitation of some particular real-estate project.

Great as has been the beneficent contribution of the city planners to our national civic welfare, this contribution will not have achieved its full possibilities and permanence until every urban child shall have been given some glimpse and insight into the far-reaching vistas of city planning during the days of his youth, for it is only during youth that ideals have unfettered growth. Such a contribution as this to the educational menu of our youth will be helpful to their training in school, stimulating intellectually, and a patriotic service to the future welfare of our people.

Embalmed Masterpieces of Technical Skill

The education of the adult population to the urgent problems of city plan-

ning is an entirely different task, vastly more difficult and delicate and far more pressing in its immediate urgency. May an outsider also add—without seeming to be ungracious or officious—that this is a task which in some phases you seem to be failing to meet adequately. So far as its value to human needs is concerned, a mediocre city plan well understood by the general public and in process of accomplishment is of infinitely more avail than one marvelous in its artistic conceptions, in scientific and economic features, a masterpiece of technical skill, but embalmed and entombed in the mausoleum of a dignified official report, accessible only to a favored few and forgotten by them.

Some of the most meritorious city plan reports in our nation in their practical functioning are playing about the same part that a beautifully embellished, highly scientific book on cookery would accomplish in the kitchen of an untrained, illiterate cornfield darky. Its effective value is almost exactly nil. Yet in the field of city planning this type of procedure is, by virtue of the early history of city planning, the traditional course. All the most effective city planning projects were at first in European countries, worked out and submitted to the prince or sovereign or to a little coterie of nobles in council, whose favor and interest was the final arbitrament of the scheme. To win the favor of this group was to attain the end of the fairy story, was to find the pot of gold at the foot of the rainbow. The same patrons who inspired the report were the authorities whose resources carried it to consummation.

In America the set-up of fiscal and social forces is entirely different. In America the project of a city plan is usually inspired and promoted and financed by a small group of forward-looking citizens, in their vision years ahead of the great mass of voters who must be won to a steadfast and enduring faith in the plan. For it is through the favor, the votes, and the taxes of the general public that the plan must be finally financed and brought to consummation.

The progress of any kind of project of far-reaching change in a democracy is a perilous one; not only must those in power for the moment be won to it, but its favor must be so implanted in the minds of the voters that it shall not be lost to sight and mind in the kaleidoscopic changes of local politics as the years go by. The people have proverbially short memories and fickle favor. The American public is too often like a great child, tickled with a new toy and forgetful of those things that endure. The incoming municipal administrations are always chiefly attentive to the latest local political bauble of the moment and not to those things whose results, however important, lie far in the future. Plans whose final end is in some future administration tend to receive scant consideration. So it often happens that a great city plan report, costly of effort and money in its preparation, with tremendous potentialities in its vision and conception, lies as inert and ineffective as King Tut in lonely splendor.

Educational Avenues to Adults

What avenues of education to the adult voting group are available? The first answer that always comes to mind is the press. In such service the newspapers are of the highest value; their motives may be safely relied upon as highly patriotic and public-spirited; they are uniformly willing and mighty educational agencies in such a cause; yet in the very nature of things they have decided limitations unless some devoted soul owns a newspaper and dedicates its staff and columns indefinitely to the consummation of the project. Happy is the city thus blessed. Aside from this unusual contingency, the educational power of the press is limited because of the fact that a matter in order to find a place in the columns of the press must be *news*, and the most useful facts soon lose the zest of novelty. The multiplication table is indispensable to civilization, but no newspaper commits the idiocy of printing it. The Ten Commandments are not often seen in daily newspapers—though in some circles they might be regarded as novel.

A place in a school curriculum is not nearly so spectacular as a front page in the daily paper, but in the long run it is tremendously more effective, because it is continuous, it inoculates each individual as he passes, and it patiently abides its time. Witness the W. C. T. U., the school physiologies of a generation ago, and the Eighteenth Amendment.

If a city plan project is to find an enduring place in the local newspaper columns, it must be connected with some continuing source from which there shall frequently emanate *news items about folks*.

Is there then an educational avenue to the adult generation? In most cities such an avenue must be planned and created for this sole end and purpose. It must be a self-perpetuating body of patriotic citizens serving without pay, but with a paid staff to handle the drudgery of details and to act as a flywheel to carry on between the impulses of the various group meetings. It must be a body far enough removed from the personal political fortunes of those who tenant the city hall to be able and willing to carry on through the vicissitudes of shifting local political changes. This body must be broad enough in its personnel and social contacts to touch every group and stratum in the city—not alone to sell the city plan to all the voters, but also to make known to the city planners the needs and hopes of all these classes and groups. This body must have in its number some of the wisest and most trusted citizens among the wealthy, and some of the most human and best-loved souls among the humbler ones of the city. This body must have among its members some with flaming enthusiasms, and other souls with dauntless patience and defeatless courage for the cause. It must think and plan and talk and make news for the papers, not only in terms of months and years, but with foresight and patience sufficient for decades. And the only pay the body may expect will be in the exceedingly fine gold of a sense of duty well done.

In Dallas we call this body the Kessler Plan Association—and from it and through it, by the grace of Dallas newspapers, have come the news items that have made Dallas men and Dallas women and Dallas children of all callings, creeds, and ranks believe in a city plan for a bigger, finer, better, happier Greater Dallas.

New York University to Study Boy "Gangs"

WHAT the boy gang thinks about and what it does when left to its own devices, are points which have been illuminated, at least so far as the gangs of New York City are concerned, by the recent sub-committee report of the New York State Crime Commission (see page 157). But the whys, wherefores, and all the alternatives can be more scientifically stated three or four years hence, when plans now under way for a three-years' study of the whole boy organization problem in New York State have been carried out and the results recorded.

The study will be conducted by New York University under the direction of Frederic M. Thrasher, Professor of Educational Sociology in the University's School of Education, who will have an advisory council of experts in this field. The field work will be done by seniors and graduate students in sociology through a system of fellowships and scholarships which are to be made available in September of this year and annually for the three years following. A recently established boys' club of 9,000 members will be used as a laboratory. All phases of boys' interrelations, normal as well as pathological, environmental as well as predisposed, will be studied.

Dr. Thrasher spent seven years studying boy gangs in Chicago. As a result, he is convinced that it is their habitat which determines whether or not the form assumed by their activities becomes eventually perverse and a menace to the community, or the opposite.

This study has been made possible through an anonymous endowment of $36,000 for the purpose, the full amount being immediately available.

Sources of Municipal Water-Supply

Abstracts of Papers Presented Before the Iowa Water-Works Conference

IMPOUNDING RESERVOIRS

By F. M. VEATCH

BLACK AND VEATCH, KANSAS CITY, MO.

THE term 'impounding reservoir" is used to designate an artificial lake formed by the construction of a dam in a natural watercourse, for the purpose of storing or impounding flood-waters.

Impounding reservoirs are widely used as sources of supply, for municipal water systems, for irrigation, for water-power projects, and, to a less extent, for flood control.

As sources of municipal water-supply, the impounding reservoir challenges the interest of the water-works profession, since, if we exclude the cities on the Great Lakes or on the larger rivers, we find very few large cities which are able to obtain an adequate supply of suitable water by any other method.

Des Moines and Sioux City, Iowa, Wichita, Kans., and a few other relatively large cities in the Middle West, are able to get satisfactory supplies from the ground, and it is true that well supplies are relied upon by the greater number of the smaller cities in this section. However, the demand for more water and for softer water has forced most of the larger towns and many of the smaller ones to impounding reservoirs.

In southern Iowa, central Illinois and in parts of Kansas, Missouri, Oklahoma and Texas, the ground water is either insufficient in quantity or unsuitable in quality for municipal use, and the only real solution of the water-supply problem lies in impounding reservoirs.

The impounded supply is usually the source adopted after the other sources fail, since the installation cost is usually high as compared to wells and river intakes, and there seems to be a common aversion to the use of "pond" water, particularly among those who have never tried it. Water from impounding reservoirs is periodically turbid, is subject to periodic occurrences of tastes and odors from organic life, and commonly must be transported for considerable distances through expensive supply-lines. On the other hand, the impounded water is ordinarily softer than the ground water in the district and can be obtained in quantities limited only by the rainfall, the extent of the drainage area and the amount of storage provided.

Design

The design of impounding reservoirs is a quite complicated procedure, and, on account of the assumptions that must be made as regards run-off where no stream-gagings are available, it is necessary that factors of safety be used to the limit. The run-off may be calculated with a fair degree of accuracy by subtracting from the monthly rainfall the losses due to evaporation from land and water surfaces, absorption by the land, and transpiration of water by plant life, each of which losses is dependent on climatic conditions and must be calculated separately with liberal allowances for safety.

The run-off so calculated varies in the Mid-West from 0 to 40 per cent of the rainfall, with the maximum occurring during the spring and early summer months, and must be corrected for evaporation from the reservoir surface, which will vary from approximately 2 inches per month at a mean temperature of 40 degrees, to approximately 7 inches per month, at a mean temperature of 70 degrees. The total yearly evaporation from water-surface in the Mid-West is in the neighborhood of 55 inches.

The loss due to evaporation from land surfaces varies with rainfall and temperature about as follows: at 40 degrees F. the evaporation will amount to approximately 6 inches per month when the precipitation is 1 inch, and approximately 2 inches per month when the rainfall is 5 inches. At 60 degrees F. these figures are approximately 7 inches and 8.8 inches, respectively.

The loss due to transpiration by plant life is dependent on the character of the plant life, temperature, rainfall and the length of the growing season. In this section, the yearly transpiration loss is approximately as follows:

For small grains, grass, and field-crops	9 inches per year
For deciduous trees	8 inches per year
For small trees and brush	6 inches per year
For evergreen trees	4 inches per year

The loss due to absorption by the soil and percolation through and under dams depends on the character of the soil and the topography, and must be assumed, with liberal allowances for safety.

When the run-off has been calculated, it is customary to determine the amount of storage required by the use of a mass diagram upon which the accumulated monthly run-off is plotted against time. This gives a diagram on which the run-off of the area appears as a wavy line and upon which various constant rates of draft appear as straight lines.

The required storage for any rate of draft may be determined graphically by measuring the maximum vertical departure of the run-off curve from the line which represents the desired draft.

Yield

In the table at the top of the next page data on several existing impounding reservoirs are given, to indicate approximately the size of reservoirs required to yield various quantities of water.

It is seen that the yield in these reservoirs is in the neighborhood of 100,000 gallons per day per square mile of drainage area, which fact is merely a coincidence, since the degree of development of the various reservoirs varies widely. More storage is required in warm and arid climates than in cool and humid ones.

In eastern Iowa and Illinois, a completely developed reservoir site may be expected to yield a continuous supply of approximately 150,000 gallons per day per square mile of drainage area, while in western Iowa the allowable draft will probably not exceed 125,000 gallons per day. This assumption presupposes a suitable reservoir site and a drainage area at least 50 per cent in grass land or forest. For extremely flat slopes and with the drainage area largely in cultivated land, the run-off will be diminished and the yield of the drainage will be correspondingly lower.

Treatment of Impounded Waters

The treatment of impounded water-supplies is interesting, since the operator is faced with the problem of removing the relatively large amounts of organic matter due to the aquatic life

A Valuable Discussion

In these four articles are set forth the advantages and disadvantages of various sources of water-supply, by well-known engineers. Cities are frequently faced with the necessity of making a decision as to the desirable source. While reliance should first be placed on the competent consulting engineer employed to study the local situation, officials will find that this series of articles offers an excellent background to aid their judgment.

TABLE SHOWING DRAINAGE AREA, ANNUAL RAINFALL AND OTHER CHARACTERISTICS OF SEVERAL EXISTING IMPOUNDING RESERVOIRS

Location	Drainage Area in Sq. Miles	Yearly Rainfall in Inches	Reservoir Storage in Millions of Gals.	Daily Draft in Millions of Gals.	Lake Area in Acres	Average Depth in Feet	Yield per Sq. Mile of Drainage Area in Millions of Gals. per Day
Horton, Kans.	9.0	32.12	700	1.0	175	12.3	.110
Herrington, Kans.	18.0	30.78	570	2.0	210	8.3	.110
Guthrie, Okla.	13.3	31.97	950	1.2	225	13.3	.090
Cushing, Okla.	24.0	34.05	800	2.5	300	7.5	.104
Eldorado, Kans.	33.0	31.22	1065	3.5	315	10.0	.106
Wichita Falls, Texas.	134.0	28.37	4600	12.0	2210	6.5	.090

in the reservoir. The turbidity troubles common to plants which treat river water are replaced by those of odors and tastes.

The impounding reservoir, after a few years' service, invariably becomes the home of fish and lower forms of life, both animal and vegetable, many of which organisms produce odors, tastes and colors either in their natural life-processes or by decay.

Copper-sulfate treatment is the time-honored method of keeping down algae growths in reservoirs, and, with proper control, is probably the most efficient treatment known. A number of investigators, however, have pointed out the fact that too much copper-sulfate treatment is sometimes a detriment, due to the fact that some algae are necessary in the reservoir to support other forms of life, and the result of the removal of this food-supply may cause the death of other organisms, with the result that foul odors and tastes are developed. When copper-sulfate is used, it should be applied in the proper amount to affect a certain organism, the presence of which has been determined by observation, and the growth of which it is desirable to regulate.

In all open reservoirs of a depth exceeding eight feet or so, there is a distinct stratification, usually in the form of an upper zone in which the water contains a relatively large amount of dissolved oxygen, a central zone in which the water contains less dissolved oxygen and more carbon dioxide, and a lower zone in which carbon dioxide from decayed organic matter predominates. The organic life in each of these zones is naturally different from that in the others, and, under ordinary conditions, it is possible to obtain water of optimum quality by drawing from the proper depths. During turnovers which normally occur in the spring and fall and which are due to temperature changes, the operator has no choice of water, but must take what he can get.

The control of large reservoirs by copper-sulfate treatment is an expensive matter and, since it cannot always be relied upon, more and more attention is being paid to the treatment of impounded waters at the purification plant rather than in the reservoir.

The treatment plant for use with impounded waters should include, in addition to the coagulating basins, settling basins and filters of the conventional water purification plant, facilities for aeration for lime treatment, and for raw or coagulated water chlorination.

Aeration

A great deal of work has been done by different investigators on aeration of water and it seems to be proved that aerators of the spray type are the most efficient when removal of odor is desired, while, for removal of CO_2, aerators of the multiple-weir type are sufficient.

For waters which are subject to odor troubles, it is probable that the installation of spray aerators both before and after treatment is justified. This requires provision in the plant design for approximately 15 feet additional head before coagulation, and from 3 to 4 feet of additional head after filtration.

Lime Treatment

Lime treatment is valuable in connection with impounded water to remove the carbon dioxide which remains after aeration and to adjust the water to the proper pH value for coagulation. The color in impounded water is commonly in colloidal form, and it has been found that its removal by coagulation with alum can be effected most efficiently at a pH value somewhat lower than the optimum point for coagulation of turbidity. These features of chemical treatment must be determined by trial for the water in question, but it is important to have the equipment at hand for both alum and lime treatment so that the proper treatment can be given when required.

Red Water

Red water troubles which are common to impounded supplies and which can almost invariably be traced to the carbon dioxide produced by the organic life in the reservoir, can very easily and quickly be eliminated by lime treatment, or lime treatment in connection with aeration.

Prechlorination

Relatively recent experiments with chlorination either in the raw water or in the coagulated water before filtration, in addition to regular chlorination of the treated water, indicate that sterilization without the bad-taste effects common to chlorination of impounded waters may be effected by the split treatment. As in the case of chemical treatment, however, this question of "partial" chlorination or "dual" chlorination is a matter for individual study and cannot be discussed at any length here.

Summary

1. That the impounding reservoir is an important and widely used source of municipal water-supply.

2. That in many districts, as in southern Iowa, the impounding reservoir offers the only really satisfactory solution to the water-supply problem.

3. That in Iowa it is possible to develop water-supplies to the extent of 125,000 to 150,000 gallons per day per square mile of drainage area, provided suitable dam sites and drainage areas are available.

4. That impounded water in general requires more careful and complete treatment than river water, but if treated properly, it is entirely satisfactory for municipal use, and is usually of a much softer quality than the ground water available.

RIVERS

By HORACE A. BROWN
BROWN AND COOK, CONSULTING ENGINEERS, OTTUMWA, IOWA

RIVERS are natural drainage ditches which carry off the surplus water falling on the drainage area through which they run. In the early days our rivers were reasonably clear streams, practically free from dangerous contamination. When settlers moved in, they polluted the streams and loosened up the soil so that much of it was washed into the rivers, until today all our streams have become highly polluted with dangerous sewage and made turbid with the silt washed from farms all over the drainage area.

Cities and towns have grown rapidly, and it has been the universal practice of all cities and towns located along the rivers to dump all their sewage and the majority of their industrial wastes directly into the rivers, rendering the water unsafe for human consumption.

The old theory that water purifies itself in running a certain distance has long since been proved to be a fallacy as far as bacterial removal is concerned. It is true that a certain degree of purification takes place with the time required to run a fixed distance, but the extent of the purification is not great. The factors entering into such purification are dilutions and time. Sunlight may aid in this process, although sunlight cannot penetrate deeply into turbid waters nor through ice. Sedimentation permits the settling of bacteria to the bottom, where they starve to death or are smothered in the mud. Natural filtration also helps.

The time required for bacteria to die from such causes is certainly not less than from three to four weeks, during which time in a river flowing at the

rate of two or three miles per hour, many hundreds of miles will be traveled.

A municipal water-supply, in order to be satisfactory today, must above all things be safe for human consumption at all times. It must be plentiful so that the citizens may have all the water that they want for any purpose to which they desire to put it at all seasons of the year. It should be free from injurious chemicals, or chemicals that render it unfit for industrial uses, for the municipal water plant is always called upon to furnish large amounts of water for many varied industries.

Safe Treatment

The safest and best treatment of river water, in order to render it safe for municipal use, is aeration, coagulation, sedimentation, and filtration, followed by chlorination as a final safeguard.

Aeration

There are many different types of aeration in use, such as spray nozzles, fountains, cascades, or combinations of some of these. The essential feature is something that will break the water into thin sheets and bring it into close contact with fresh air. The more thorough the breaking-up into thin sheets or fine sprays, and the more intimate the contact with fresh air, the more efficient the aerator will be.

Coagulation

Coagulation and sedimentation of a water is brought about through the introduction of certain chemicals such as aluminum sulphate or iron sulphate and lime, or soda ash; aluminum sulphate and lime are the most commonly used.

Aluminum or iron sulphate is thoroughly mixed with the raw water either before or at the point of entrance of the sedimentation basin. It is immediately transformed into aluminum or iron hydrate, which is a gelatinous substance, insoluble in water, and which thoroughly permeates all the water. This immediately breaks up into pieces varying in size from about that of a pin head to a pin point. This "floc," as it is usually called, is slightly heavier than water, and if the water in the sedimentation basin is slowed down to a proper rate, the floc settles quite rapidly toward the bottom of the basin, and, being of a sticky, gelatinous character, it traps the bacteria and the particles that compose the turbidity and color and carries them along to the bottom of the basin, where they are held until the basin is washed out.

Filtration

By the time the water has passed through the sedimentation basin and is ready to be brought onto the filter beds, a very large percentage of the bacteria, turbidity and color have been removed, although quite a heavy floc will still remain in the water. The filter sand catches this floc, and a mat coat is quickly formed over the sand bed through which all of the water must pass; and in passing, the remaining bacteria and turbidity and color are removed from the water to such an extent that the effluent from the filters should usually show that at least 98 per cent of the total bacteria in the raw water have been removed, as well as 100 per cent of the turbidity and color.

It is also clear that by the action just described all of the alumina or iron that was added to the raw water has also been removed; it all becomes an insoluble material as soon as it is added to an alkaline water and the plant operator always keeps the water sufficiently alkaline by the use of lime or soda ash to insure the complete reduction of the aluminum sulphate into aluminum hydrate.

DEEP WELLS

By H. F. BLOMQUIST

SUPERINTENDENT, CITY WATER-WORKS, CEDAR RAPIDS, IA.

DEEP wells in this vicinity are considered to be wells that draw their supplies from water-bearing formations deeper than 200 feet below the surface. Chemically pure water is composed of the two elements hydrogen and oxygen, but we do not find chemically pure water available for public water-supplies, neither would chemically pure water for various reasons be entirely satisfactory for such supplies. Several compounds in the earth are slightly soluble in water, and small amounts of them dissolve when they come in contact with it as it flows through the earth in its cycle from rain back to the sea. The water in deep wells contains a number of compounds in solution which affect its uses even though such compounds are in small quantities. Thus, solutions of calcium or lime, magnesium and other compounds impart to water a quality known as hardness, which greatly affects its use, especially in the laundry, since a portion of the soap used in the process is wasted in neutralizing such compounds. The new compound formed with soap is a sticky substance, detrimental to clothing because it adheres to the fibers of the materials washed, leaving it rough and stiff instead of soft and fluffy. The effect of hard water in heating coils and boilers is bad.

A well water of good quality in Iowa should be one low in total mineral compounds, say less than 300 p.p.m.; its hardness should be less than 12 grains per gallon; and the highest limit for iron compounds should be set at 0.5 p.p.m. It should be free from organic compounds and dissolved gases that would impart tastes or odors. Ground waters in this vicinity generally contain larger quantities of mineral solutions than this, and are therefore not so desirable for industrial use as surface waters with the lower mineral content.

Quality Variable

Ground waters vary quite widely in the amount of mineral solutions they contain. This is natural, since they flow through different strata of earth and rock, which impart to them different kinds and different amounts of foreign matter. Water from the different strata of earth and rock in the same well therefore have different qualities, some less objectionable than others. There is some general information available in geological reports as to the quality of water in various deep wells, but since many deep wells go through a number of water-bearing formations, all of them may supply some water when such wells are pumped at high rates, causing the greater draw-down to reduce the water pressure in the well below that of the low-pressure strata, thus drawing from them also; while if pumped at lower rates, water may be drawn from only one or two of the high head formations; therefore, it is not possible to forecast definitely what the quality of water from a deep well will be.

The Cedar Rapids water-works has two deep wells used as an auxiliary supply. One of these is a reconstructed well which was originally drilled to a depth of 2,200 feet, but later filled and plugged, leaving a depth of 1,500 feet, because it was found that the water from the deeper formations was more corrosive and had a very high mineral content. When pumped at a rate of 600 or 700 gallons per minute, four or five years ago with a draw-down of 70 or 80 feet, the water from the reconstructed well had a total solid content of 570 p.p.m. and a total hardness of 349 p.p.m., or 20.4 grains per gallon, but after an air-lift which has a greater pumping capacity than the old pump was installed and the draw-down increased to 150 feet, the mineral content increased to 731 p.p.m., and the total hardness to 480 p.p.m., or 28 grains per gallon. The other well, used simultaneously and located about a mile away, was drilled to a depth of 1,500 feet and is pumped to a draw-down of approximately 85 feet, and yields a water with a total solid content of 454 p.p.m. and a total hardness of 310 p.p.m., or 18.1 grains per gallon. The temporary hardness of both wells is nearly the same, the difference being in permanent hardness. The principal sources of both wells are the St. Peter and Jordan sandstones. Both wells are cased to a depth of 600 feet to shut out the upper waters, which are quite hard. The old well, in addition to being supplied from the main

water-bearing strata, gets some water from a different stratum from those supplying the other well. The logs of both wells are very closely the same, but there may be a leakage into the old well from the bottom or from the upper formations through faulty casing.

Analyses When Well is Drilled

It is worth while to arrange for taking water samples for analysis from different depths of deep wells at the time of drilling, also for getting the water heads in the different formations. This would entail some additional expense, because in order to get a representative sample from any formation, a temporary well lining would have to be installed to shut off the other water-bearing formations. In that way formations yielding waters of high mineral content, or of a corrosive nature, would become known and could be permanently shut out by well casings leaving the waters of better qualities for use. Such additional expense would be justified in making the first well where more than one well is needed for a water-supply in one locality.

Geologists who have studied ground waters are of the opinion that in some deep wells water escapes through porous strata which have lower water heads. Such strata might be cased to keep water in the well, and some should be cased to keep inferior water out.

Possible Contamination

As a general rule, water from deep wells is of good quality from a sanitary standpoint, but on account of possibilities of contamination through leaky casings, or the infiltration of surface waters along the casing, or through open rock formations, eternal vigilance must be exercised over well waters as well as over water from other sources which are used for public supplies. Bacterial analyses of water from our city wells have always indicated freedom from contamination, and the water is therefore not chlorinated.

Pumping

The pumping of a deep well is no longer as serious a problem as it has been in the past. In recent years a marked progress has been made in the building of deep-well pumps, both as to increased mechanical efficiencies and as to reliability in continuous operation. The trend has been toward the turbine or centrifugal type, especially for the larger capacities. There are now several makes of centrifugal well pumps that are ruggedly made and entirely reliable for public water-works service. Good air-lift and piston type pumps are also available, and have their particular fields of service. The type of pump to be selected should be determined according to the local conditions, by some one competent to make such selection.

SHALLOW WELLS

By V. H. LEAR

MANAGER, CITY UTILITIES, NEWTON, IOWA

THE first problem connected with a shallow well supply is, naturally, the location. It is absolutely essential that plenty of prospect wells be put down over the whole area, or at least a large part of it, and that a careful record of the character and thickness of all strata encountered in drilling, and samples of the water-bearing sand and gravel, be collected for analysis. Eliminate all guesswork when locating and developing a shallow well supply. Time and money spent in prospecting will pay big dividends in the end, and money spent for competent engineering service is the best investment a city can make. It is not intended to discredit reliable well drillers, as they have knowledge that can be gained only by long experience, and their judgment can usually be depended upon. Some of the problems which come up, however, are purely questions of engineering and therefore a combination of expert engineering judgment and the practical experience of the well driller will bring the best results.

Information furnished by old settlers usually needs to be confirmed by actual tests.

Based on experience in Newton, Iowa, some type of gravel-packed well is the most economical when tubular wells are to be used in water-bearing sand or gravel which is not very coarse.

Esthetic Objectives in Conceiving the City Plan

By CHARLES H. CHENEY

CONSULTANT IN CITY PLANNING, PALOS VERDES ESTATES, CALIF.

CITY builders, architects, engineers, look well to your planning! Build nobly! Hold to high ideals! Above all, remember that man must have the joy of living, the real pursuit of happiness which, after all, is only truly satisfied in a highly esthetic environment in combination with sound social and economic conditions.

Plan for beauty. Deliberately and carefully, every item of the master plan must be thought of, from its inception, with regard to the effect, the beauty that it will produce.

Plan for color. Human nature reacts sharply to color, which may be cheerful, pleasing, extraordinarily stimulating; but as yet has been debased, desecrated most inhumanly, incontinently defiled, and, purely because of carelessness, in most communities. Color can make or destroy the best architecture; it can retrieve much of the worst. Color planning in cities will some day be as important as street planning.

Plan for individual character. Every city, county, or region has something of its very own, of life, of subtle character, individuality. This is most precious. To preserve and enhance it is the prime duty of every planner.

Plan generously. The new age, the flying age now upon us, opens demands of space unthought of, which, however, must be met. The great communities of the past were those that planned on a large scale, and built to a big mold. Now, time and space have been annihilated. Industry, housing, even business, are certain to spread out over tremendous areas. We need wide streets, squares, parks and playgrounds. Vision and wise planning are required as never before. The Chicago Plan remains the greatest in the country, because of the generous scale on which it has provided for the future.

Plan complete architectural control. The general architecture, mass and appearance of all buildings, private as well as public, is essentially a matter of public concern. Enormous depreciation and waste result from the present unregulated system of building*.

Plan to maintain the "town picture." The community is entitled to preserve the outward characteristics which develop as a result of God-given natural beauty or of its being a community. The city needs protection from disfigurement, and the preservation of old buildings, of natural beauty, and of architectural monuments. Many of the older communities of Europe have long protected these things. We have much to be proud of and preserve, in our old colonial buildings of the eastern seaboard, and in our Spanish colonial inheritance in California and the Southwest, if we keep them inviolate.

America must build better cities. We are a rich nation, but a tawdry one in appearance. Our station in civilization demands and requires a better dress, our progress in education and culture insists upon a better environmental condition for our children and our children's children.

Remember that the architecture we leave behind us is the chief measure of our civilization. We must act as promptly to insure that in the future, at least, no more such tawdriness, no more such ugliness, no more such lack of color, shall be tolerated in new buildings.

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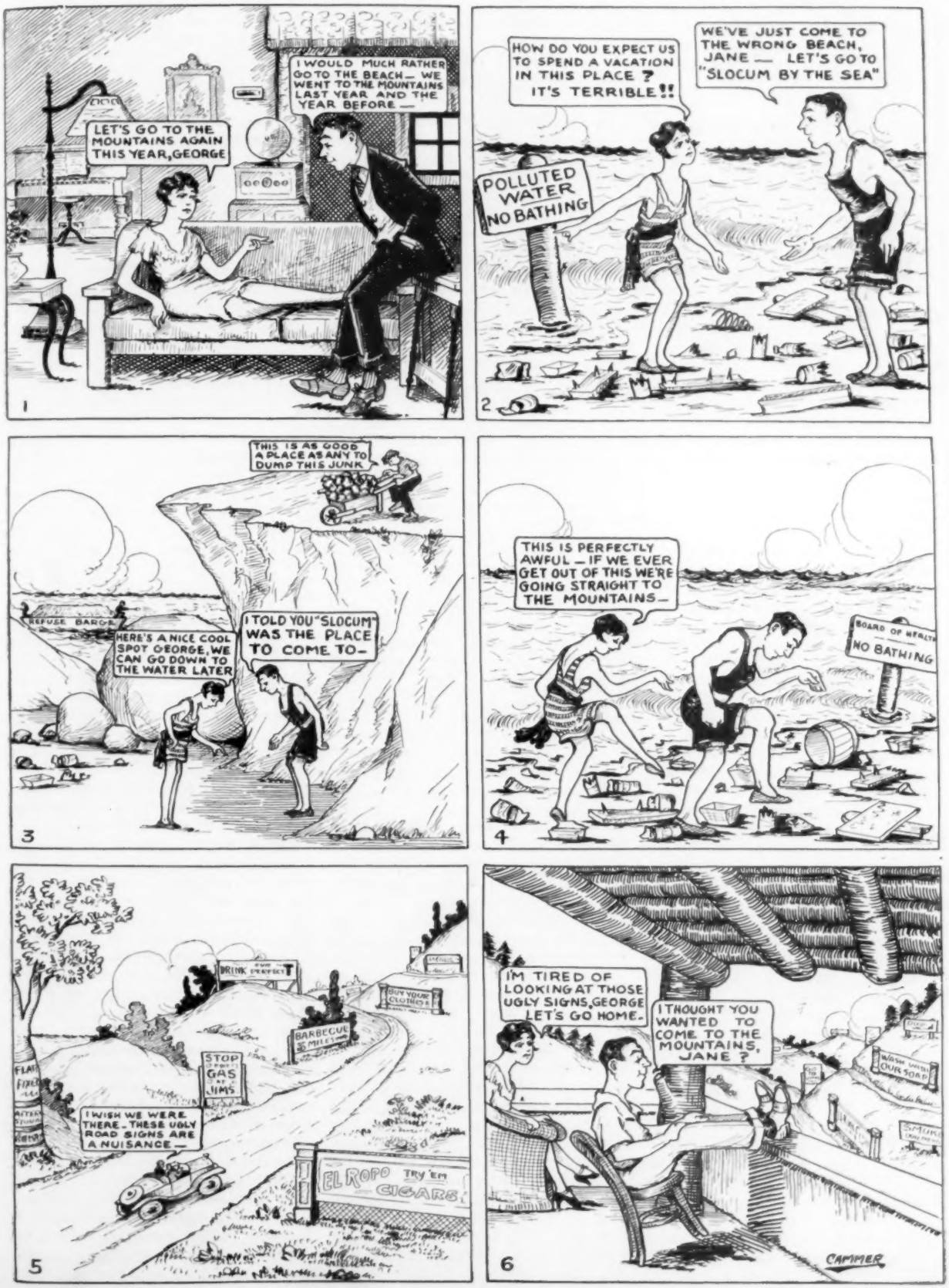
* See "Municipal Control Over Private Architecture Predicted," THE AMERICAN CITY, August, 1927, page 199; also Mr. Cheney's paper, "Progress in Architectural Control," page 248, *Proceedings*, National Conference on City Planning, 1927.

EDITORIAL NOTE.—The foregoing article is excerpted from Mr. Cheney's paper, "Building for Permanency: The Esthetic Considerations in a Master Plan (or City Plan)," delivered before the National Conference on City Planning in Dallas, Texas, May 8, 1928.

Why Some Vacationists Return Home—or Stay There


LET'S GO TO THE MOUNTAINS AGAIN THIS YEAR, GEORGE
I WOULD MUCH RATHER GO TO THE BEACH— WE WENT TO THE MOUNTAINS LAST YEAR AND THE YEAR BEFORE —
1
HOW DO YOU EXPECT US TO SPEND A VACATION IN THIS PLACE ? IT'S TERRIBLE!!
WE'VE JUST COME TO THE WRONG BEACH, JANE — LET'S GO TO "SLOCUM BY THE SEA"
POLLUTED WATER NO BATHING
2
THIS IS AS GOOD A PLACE AS ANY TO DUMP THIS JUNK
REFUSE BARGE
HERE'S A NICE COOL SPOT GEORGE, WE CAN GO DOWN TO THE WATER LATER
I TOLD YOU "SLOCUM" WAS THE PLACE TO COME TO—
3
THIS IS PERFECTLY AWFUL — IF WE EVER GET OUT OF THIS WE'RE GOING STRAIGHT TO THE MOUNTAINS—
BOARD OF HEALTH
NO BATHING
4
DRINK
BARBECUE
BUY YOUR CLOTHES
STOP
GAS
JIMS
I WISH WE WERE THERE - THESE UGLY ROAD SIGNS ARE A NUISANCE —
EL ROPO TRY 'EM
CIGARS
5
I'M TIRED OF LOOKING AT THOSE UGLY SIGNS, GEORGE LET'S GO HOME-
I THOUGHT YOU WANTED TO COME TO THE MOUNTAINS, JANE ?
WASH WITH OUR SOAP
6
CAMMER

Drafting the Building Code

How a Community Can Proceed to Obtain Assurance of Better Methods of Construction

By O. J. SWANDER

KANSAS INSPECTION BUREAU, TOPEKA, KANSAS

ONE of the most important problems confronting any city is the drafting of a building code providing reasonable and safe regulations governing the construction, alteration, equipment, or removal of buildings or structures. Certain standards of building construction are necessary to safeguard life and property in the congested districts of our modern cities. Thousands of human lives and millions of dollars' worth of property have been sacrificed by the criminal neglect of those in authority who permit the erection and use of unsafe or defective buildings. Certain economic or political forces are always active to lower the standards of building construction, and public regulation is necessary to minimize the fire hazard and to insure buildings that are structurally safe.

Most cities have realized their responsibility to a degree and have made some attempt at legislation, although in many cases the resulting codes have been incomplete and inadequate, and ill-adapted to the needs of the city. Conditions vary slightly in every city, and the details of a building code must be carefully designed to allow for individual physical characteristics or special occupancies, or to permit the use of native building materials.

The items of construction cost must be carefully watched, because, while from an engineering standpoint it is possible to build fireproof and accident-safe buildings, it is not yet practicable for everyone to live and work in such structures. The building code must be designed to insure the required minimum of safety without imposing an undue burden upon the construction industry. It should be remembered that a building code is based upon the police power, its only purpose being to safeguard life and property, and it is not to be confused with a set of specifications setting forth desirable standards.

Committee Personnel

Building codes are commonly sponsored or drafted by chambers of commerce or other civic organizations, by building officials, or by a special building code committee. Probably the most desirable method is by a carefully selected building code committee. The chief building official, the fire chief, a public-spirited engineer or architect, an experienced contractor, and a representative of the chamber of commerce or other civic organization, should form the personnel of the committee. It is not necessary to have an atorney on the committee, although after the code is finished, it may be submitted to one to see that it is legally binding.

In addition, it is desirable to secure the services of a special consultant, an architect or engineer who has had experience in drafting building codes. Members qualifying for service on the committee are seldom able to give more than a small part of their time to the work, and the details can best be worked out by a specialist thoroughly conversant with the latest developments in the building trades.

The fire insurance interests, through the agency of the National Board of Fire Underwriters, 85 John Street, New York City, lend valuable assistance to cities drafting new building codes or revising old ones. Because of its broad experience, this organization is well qualified to advise on details of building construction, especially on those items relating to fire safety, and every city should solicit its assistance.

Considerable information on the subject of building codes may be secured from the United States Department of Commerce, Washington, D. C., the Forest Products Laboratory, Madison, Wis., the Underwriters Laboratories, Inc., 207 East Ohio Street, Chicago, Ill., various engineering societies, certain university laboratories, and from many building materials organizations. Complete information on each subject should be assembled and studied before drafting that section of the code.

Arrangement of Subject Matter

A building code requires a systematic and logical arrangement of subject matter to facilitate its use. One criticism often made of existing codes is that the same order is seldom followed in any two codes. One code may leave out important sections and be unnecessarily verbose in others, and frequently different sections conflict with each other. This is usually due to their having been revised from time to time, or to their having been compiled by copying sections from several codes, without sufficient care to prevent duplication, repetition or conflict.

A code is much more easily referred to if it follows a carefully worked-out logical plan, and the more simple the plan, the easier the code will be to enforce. Also, it is easier for an architect practicing in a number of cities to comply with local regulations if all codes in different cities follow a similar plan.

Two general methods of code arrangement are in vogue. One takes up each class of occupancy in a separate chapter, and gives in detail the code provisions applying to each company. This results in a complete building code for each class of occupancy, which necessitates considerable repetition and increases the cost of printing. The second method gives the code provisions for each type of construction and classifies the occupancies, specifying those which will be permitted in each class of construction. The latter plan has been followed in the building code recommended by the National Board of Fire Underwriters, and is the plan recommended by the United States Department of Commerce in their bulletin, "Recommended Practice for Arrangement of Building Codes."

The recommended outline for building codes contained in this bulletin has been given wide publicity, and it is a good one to follow, in the interest of uniformity and the resultant simplification of manufacturing and building design.

Putting Order Into Building Regulation

Although some 600 cities are provided with building codes, there is a wide field for preparing new codes for other cities; and revisions of existing codes are called for from time to time. The article here presented is a concise statement of matters to be taken into consideration in drawing up a building code for the protection of both the community and the honest builder against dishonest or unsafe construction.

A more extensive treatment of this subject from another source is the Municipal Administration Service monograph, "The Preparation and Revision of Local Building Codes," by George N. Thompson, Secretary of the Building Code Committee of the Department of Commerce. A brief article on page 473 of THE AMERICAN CITY for October, 1927, related to this. At the convention of the New Jersy League of Municipalities, in February of this year, Mr. Thompson presented a paper on this subject, wherein he outlined the steps to be taken in getting a good code established, and emphasized that, by keeping abreast of modern conditions and recent experiments, codes can be so revised as to reduce building costs.

LIST OF CHAPTERS

Preface. — Title and Scope
Chapter 1. Administration
2. Definitions
3. Classifications
4. General Building Restrictions
5. Zoning
6. Light and Ventilation
7. Means of Egress
8. Materials, Loads, and Stresses
9. Construction
10. Precautions During Erection
11. Fire Protection
12. Chimneys and Heating Appliances
13. Special Occupancy Provisions
14. Elevators
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16. Heating
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18. Signs and Billboards
19. Fire-Extinguishing Equipment

In order that the city may be informed of proposed construction and the code properly enforced, it must require a permit before the erection or alteration of any structure is started. Before a permit is issued, the applicant is required to furnish complete specifications and all necessary plans of the proposed work.

It is also desirable to require a certificate of occupancy before a building can be occupied, and to require all changes of occupancy to be reported. This will insure that the floors will safely bear the loads characteristic of the proposed occupancy. If this is not done, an unnecessarily large margin of safety must be required when the building is erected.

A provision must also be inserted in the building code to create the office of building inspector, and to authorize the employment of deputies and subordinates.

An important section of the code is the one defining all terms used in the code which would not be readily interpreted by the layman. Many terms are used in the building trades which have no meaning in the sense in which the words are commonly used. Court decisions are always based on the meaning of terms as they are defined in a dictionary, even if the word is commonly used in a different sense. The code recommended by the National Board of Fire Underwriters defines such terms as cellar, factory, dwelling, court, garage, hotel, and so forth.

Classification of Buildings

Before taking up the details of building construction, the code should classify buildings, first, by occupancy, and second, by the types of construction. A suitable grouping of occupancies is under one of the following headings, with suitable subdivisions under each heading:

1. Public buildings
2. Residences
3. Business buildings

All types of building construction may then be classified according to the following table, and one of the general types of construction specified for each classification or sub-item in the occupancy table:

1. Frame construction
2. Non-fireproof construction
   a. Ordinary construction
   b. Mill construction
3. Fireproof construction

Another important section of the building code is the one defining the fire limits. These should include the mercantile district, together with a full block on each side. It is not sufficient to include only the built-up mercantile district; the damage there is already done. Alleys should not be used as boundaries, because a fire can easily sweep across an alley. It is not fair to require an owner in the mercantile district to build a brick or fireproof building, and permit it to be exposed across a narrow alley by a large-area frame building.

The heights and areas permissible for each occupancy or type of construction should be specified in the code. It is desirable to limit frame buildings, except those used for single dwellings, to two stories in height. Permissible heights for other forms of construction will vary according to the street widths, the occupancy, and the type of construction.

One of the greatest factors contributing to large fire losses is excessively large areas, especially in buildings of frame or ordinary construction. Larger areas may be permitted when a building fronts on two or three streets than when it is located in the middle of a block.

Another factor that has a bearing on permissible height and area limits is the fire protection available in a city. Cities that have only a small fire flow available should not permit buildings of very large area, and the height of buildings which may safely be permitted depends upon the hydrant pressure, or, where pumping engines are in service in the fire department, upon their capacity.

Exits and Fire Escapes

The lack of exit facilities is probably the greatest contributing cause to the loss of life by fire, and one of the most important sections of the building code is the one dealing with exit requirements. All buildings should have at least two means of exit remote from each other. The code may also limit the number of persons allowed in existing buildings according to the capacity of the exit facilities of such buildings.

In spite of the fact that many state and municipal regulations require outside fire-escapes, the escapes, as they are usually constructed, are merely makeshifts, at the best. One frequently sees, on hospitals and schools, fire-escapes that would tax the agility of an able-bodied man to descend. Outside fire-escapes are often inaccessible to portions of a building except by going through halls that may be impassable owing to fire or smoke, and many lives have been lost on fire-escapes that were not shielded from flames coming out of lower-story windows.

Smoke-proof towers which are essentially fireproof shafts cut off from the remainder of the building are preferable to fire-escapes. Once a person enters the tower, he is safe, even though the fire may have involved all floors of the building. These towers are also safe locations for standpipes for either private or public use, and they are a safe means by which the fire department can reach the floor where the fire has broken out; this is very important in high buildings. Horizontal exits and stairs properly cut off may also be considered in calculating exit capacities.

Structural Details

The building code must also go into detail regarding various features of engineering design. The quality of materials acceptable must be specified, and methods of testing materials must be specifically provided for. The code must give the permissible working stresses for various materials, and must fix the factor of safety required for others. The floor loads, wind stresses, and secondary stresses for which a building must be designed should be set forth. Methods of determining bearing value of soils should be described, and the extent of foundation walls and footings, as well as the permissible loads on piles, should be specified for different types of soils.

Requirements should be included covering the thickness, height, and structural details of walls. These details will vary for different materials and for different types of walls. Regulations should include bearing, non-bearing, and panel fire-walls, party walls, and exterior division walls. Regulations covering parapet walls should also be inserted.

Fire Protection

A complete building code will include regulations covering fire-protection details. All structural members, especially in buildings housing combustible contents, should be protected by concrete, terra-cotta, or other approved material. Methods of fireproofing columns, girders, and beams should be described in detail. The details of floor construction for different occupancies, and types of building construction should be set forth in this section of the code; these details will include fireproofing, waterproofing, and drainage.

Precautions for preventing the spread of fire should also be set forth. Unprotected vertical and horizontal openings always contribute to the spread of fire from floor to floor or from one section of a building to another. The fire-resistance periods of partitions, inclosures for elevator shafts, stairways, dumbwaiters, and other openings between

floors should be specified for each type of construction.

Another means of fire communicating from one section of a building to another is through concealed spaces in walls and floors or through ducts and chases for pipes, belts, shafts, or other similar objects. This may be prevented by requiring adequate fire-stopping.

Regulations covering roof construction and the construction of penthouses and other roof structures are necessary. These, like other requirements, will vary for different types of construction. Consideration should be given to prohibiting the use of wooden shingles even on dwellings. Approved roofings cost but very little more, and they have had a much better fire record.

Special Occupancies

One chapter of the code should cover requirements relating to theaters, schools, factories, hospitals, hotels, apartments, and other special occupancies. Many occupancies have special hazards that must be safeguarded, and these requirements should be inserted in this part of the code. For instance, theaters require special regulations covering the arrangement of seats, construction of proscenium walls and curtains, and fireproofing of scenery.

Other chapters which are essentially individual codes governing their respective subjects should take up the construction and equipment of elevators, and the installation of all plumbing, including water, sewer, gas, and heating equipment.

Another essential section of the code is the one regulating the safe installation of all electrical equipment. Most codes require that all electrical installations shall be in accordance with the requirements of the latest edition of the National Electrical Code.

Results of a Good Code

Many of the results of a good building code are not immediate, and most of the benefits are not readily apparent to an untrained observer. But neither are the benefits of a good police or fire department readily apparent, and the lack of either of these life- and property-protecting agencies would soon be painfully evident. Cities without adequate building regulations are characterized by flimsily constructed buildings, large fire losses, high insurance rates, and all too often by the loss of life in fires or in building failures. Our large annual fire loss could be much reduced, and all of our great conflagrations could have been prevented by adequate building regulations. The result of a good building code that is properly enforced will, after a few years, be apparent, in any city, by better-constructed buildings, reduced fire loss, low fire-insurance rates, and increased safety to life.

Under What Conditions Does a City Become Responsible for the Care of Sick Poor in Hospitals?

THE cities of New York State answer this question with different degrees of definiteness. In general, they wish to be properly notified of such cases; and, in general, proper notification means *prompt* notification by the hospital upon admission of the patient. *Immediate* notification is not always possible; as, for instance, in accidents, or in emergency cases at night; but there seems to be no reason why a hospital should wait till the end of the patient's first week in the hospital to find out whether the bill then due is to be paid by the patient or his family, or presented to the municipal charity department—as in the hypothetical case stated to the New York State Bureau of Municipal Information by the charity commissioner of a New York State city:

"Let us assume that on January 14 a patient was taken by the family to a hospital. At the expiration of a week the hospital, in accordance with its practice, hands to the patient or to a member of the patient's family, as the case may be, a bill for the first week's hospital expense. The patient or the family informs the hospital that they have no money to pay for hospital expense. The hospital then reports the case to the public charity department and requests that the patient become a city case and the charity department pay the hospital expense. In other words, the charity department is to put its O. K. to an indebtedness which it has not contracted."

The layman will conclude that the hypothetical hospital was a poor business concern in not having made inquiry at once as to the responsibility for the patient's bills. Various city charities departments to which the problem was submitted reply feelingly on this point, though with full recognition of the importance of giving aid where it is needed rather than maintaining an inflexible system. Albany says:

"To accept bills from hospitals under the conditions outlined would be to open the way to very serious abuses. No city could afford to allow such a system to exist, as it would take full control from the officer of the charity department and place it in the hands of a private hospital." In this reply the section of the revised Poor Law is quoted which provides that in emergency cases the hospital shall send to the public welfare commissioner of the district in which the patient lives, or, if the patient's home is unknown, to the commissioner of the public welfare district in which the hospital is located, a report of the facts of the case, and the commissioner shall be responsible for determining whether any public welfare district or the state is responsible for the care of the patient.

Binghamton expresses leniency and sympathy with unavoidable tardy notification of emergency cases, but makes thorough investigation before paying hospital bills; Elmira also, sometimes collecting from the family later by installments. Jamestown pays hospital bills only from the date application is made by some member of the family.

Mechanicville would not pay a hospital fee based on individual fees on a case that the city had not committed, but would accept the charge if the case was a proper obligation and would have been committed by the city if an application had been made.

New Rochelle does not pay for any cases admitted to the hospital unless an authorization has first been obtained from the charities department; in other words, as in Jamestown, back bills are not paid by the department. Like Lockport, New Rochelle sends long cases to the county hospital.

New York City has a strict rule that within 24 hours the Commissioner of Public Welfare must be notified of the reception or discharge of any person for whose care city or county funds are to be paid. Oswego has a similar rule. Rochester makes the requirement 48 hours, and, in return, investigates and reports within 48 hours. Rome pays only for what it orders; city cases are accepted at the county hospital and paid for from the city tax levy.

These and the other cities that have reported upon their methods of dealing with the problem give evidence of tempering justice with mercy.

The Historic Cambridge Common and the Automobile Parking Problem

CONSIDERABLE opposition has developed to the proposition that a part of the historic Common in Cambridge, Mass., be set aside for the parking of automobiles. The suggestion was made to Mayor Edward W. Quinn and the City Council by the Cambridge Traffic Board, the idea being that this would afford a remedy for the problem of evening parking in the Harvard Square district.

Timothy Ahearn, City Electrician and Chairman of the Traffic Board, stated that the Common was originally set aside as a common grazing-ground for cattle and horses and that as the automobile of today takes the place of the horses used in years gone by, there should be no objection to using a part of the Common for parking purposes. The increase in restaurants and the building of the new Commander Hotel have increased the demand for parking space in the vicinity.

Chief of Police McBride, Chief James M. Casey of the Fire Department, and Acting Superintendent of Streets Holt are in favor of the Common parking scheme; but historical societies and residents of the section are opposed to it. It is expected that a special committee will be appointed to study the situation.

Cooperating Effectively with Nature in the Layout of Land

IT would seem to be self-evident that the topography of the site is one of the factors to be considered in the plotting of a subdivision, if the plot can properly be called a design, or even a reasoned business proposition, says Henry V. Hubbard, Fellow of the American Society of Landscape Architects and Professor of Landscape Architecture at Harvard University, in an article, "The Influence of Topography on the Layout of Land Subdivision," in the April issue of *Landscape Architecture*, the quarterly of which he is Editor. Indeed, he adds, the idea is slowly percolating into our intelligence, but there are still many subdivisions being put on the market which prove that not all of us have absorbed the notion.

"Of course if you have a dead flat piece of ground, and there is nothing existing or predicable to make the roads go one way rather than another, then the cheapest scheme to plot, and lay out, and describe and construct and sell is a 'gridiron' of straight roads and rectangular lots, though that is not saying that its appearance will be interesting."

And the gridiron is not, Mr. Hubbard hastens to add, a curse laid upon our cities by pure malevolence or even pure inertia. A straight line is after all, the shortest distance between two given points—for the engineer if not for Mr. Einstein. A gridiron is a recognizable and reasonable-looking thing on a map. Esthetic justification for it goes even further—in most styles of architecture buildings are chiefly of straight lines and right angles, and the harmony-loving inner eye calls for the grouping of buildings into compositions where straight lines and right angles mostly make up the street frontage.

If, however the street frontage is not dominated by formal architecture, as usually it is not, then the necessary adaptation of the street to the topography to avoid foolish expense brings the topography into the composition as an important—often as a dominant—factor giving opportunity for the esthetic development of design.

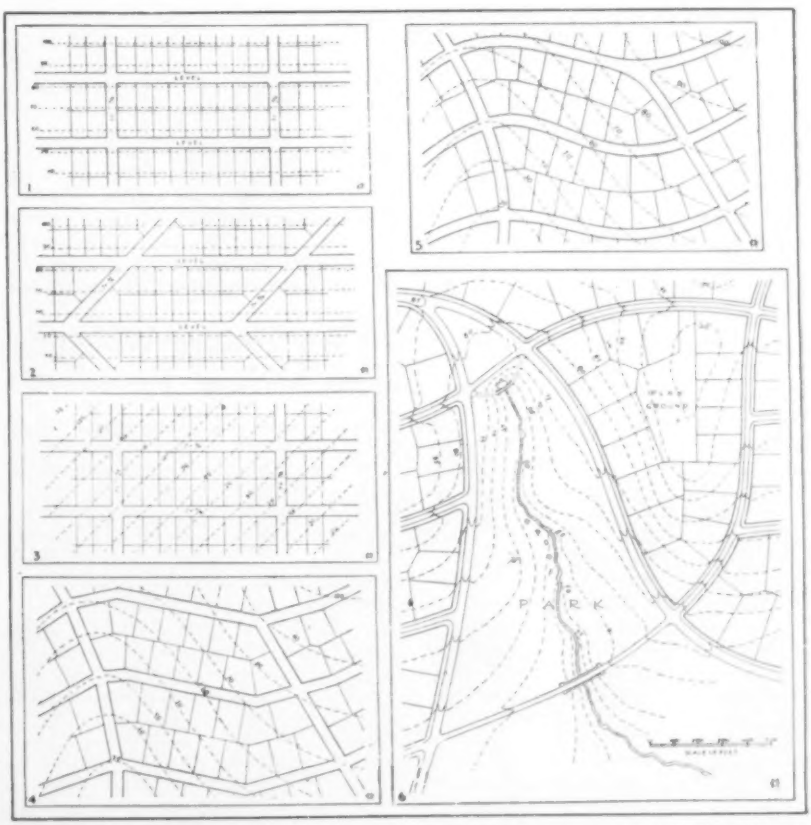
"You can run your streets in curves, or possibly broken straight lines, fitted as closely as may be to the surface. You can make the most of the compositions of hill and dale and outlook naturally offered, and you can treat the houses as incidents in a composition fundamentally natural rather than architectural. Also in some cases you can get a unity of design by the sequential curvature of the streets themselves and their flowing relation to each other as well as to the ground."

Any type of arrangement, Mr. Hubbard believes, will prove good or bad according to circumstances. It is easy to find cities where rectangularity and rectilinearity have produced enormous expense and great monotony with no sufficient offsetting advantage; and it is equally easy to find cities where the unplanned addition of house to house and street to street, each serving only its own purpose, has produced nothing more noble than an inconvenient mess. The writer continues:

Adaptation of Street Plan to Topography

"What we are interested in here is an attempt to consider how far we can reasonably go toward the detailed adaptation of streets, lots, and buildings to local use, and especially to local topography, still not thereby sacrificing the admited advantages of what we have called the gridiron, at least not sacrificing them without adequate return in equal convenience, and in another type of beauty.

"In the first place, the degree and kind of advisable adaptation of street plan to topography depends on the advisable size of the lot and the nature of its expected occupancy. Suppose you have a region of small knolls and valleys, irregular and wooded. If the lots are to be suburban places of three or four acres and upward, you would locate the roads with the utmost respect to the topography, trying to include in each lot the greatest amount of self-contained natural beatuy possible, because it would be an asset to the purchaser, and could be largely preserved when he developed the lot. But if the inevitable development were in very small lots which would ultimately be largely covered with houses, then the natural beauty is doomed in any case, and the roads and lots might better be arranged for their use and for another kind of beauty, presumably smashing ruthlessly through the present undulations and tree growth. Of course in these circumstances you would try your utmost to put the lots on the flattest and least interesting ground, and to preserve the steepest and most interesting ground in parks—local or general—which could be large enough to include unspoiled some of the best of



TOPOGRAPHY SHOULD BE THE DECIDING FEATURE IN THE SUBDIVISION LAYOUT
1. Rectangular gridiron on slope, length of block level. 2. Rectangular gridiron, steeper streets diagonal to slope. 3. Rectangular gridiron, all streets diagonal to slope. 4. Irregular rectilinear plan, fitting varying slopes. 5. Curvilinear plan, fitting varying slopes. 6. Relation of street to ground dominant over block pattern

the original natural beauty. We often see cases which would be laughable if they were not pitiable, where land is sold as houselots because it is naturally beautiful, but when the houselots are created this inevitably completely destroys the natural beauty which first attracted the purchaser. As we shall have occasion to say again, the individual landowner cannot usually help this, but the city, through zoning, often can, by steering each type of development into the land most appropriate for it.

"There is little difficulty in the adaptation to topography of a layout of lots of, say, five acres each, and upward, unless the topography is very rough. There is room to arrange the streets to fit the surface, and to get to the house sites and garages with entrance drives, because the lots can be of very irregular shapes and different sizes and still be perfectly usable. The difficulty increases as the lots get smaller, and as, therefore, the relation of the house and garage to the lot boundary and to the street grade become tighter, and it is at its worst where the lot is at its minimum effective size, that is, where all the area of the lot is used for necessary purposes of residence, approach, clearance, setback, and so on, and there is little 'slack' in which to take up differences of grade.

"This minimum effective size—or more particularly lot width—differs according to the type of housing, and really works out as three separate problems—the single-family house, the semi-detached house, and houses in rows or groups. The multiple-family house—apartment house, hotel, and so on—is a special problem in architecture rather than in adaptation to topography, because of the enormous preponderance of the requirements of the building over those of the open land in the lot. That is, in these cases the land must be adapted to the building, more than the building to the land.

"In any case, the gridiron plan of streets will work, so far as grades are concerned, up to the point where the steepest natural slope does not exceed the steepest allowable street gradient. Up to this point the reason against the use of the gridiron, if any, would be likely to be an esthetic one; namely, the ugliness of the gridiron not strongly supported by houses, and unrelated to an undulating topography.

"The gridiron can, however, be in some cases related to the ground surface. For example, it is reasonable to run the streets with one set parallel to the hillside and one set at right angles up and down the hill, making the length of the blocks face on the level streets, and thus having no trouble from lot access off steep streets (see fig. 1). But since the hillsides are naturally not all parallel, this often results in an abandonment of one rectangular gridiron for any large area.

"The next step, if the steepness of the sloping street is too great, is of course to run the sloping streets diagonally up the hills, thus abandoning the rectangular gridiron (see Fig. 2), or, conceivably, to maintain the rectangular gridiron, but to set it diagonally on the hillside, thus having a considerable gradient on *all* the streets (see Fig. 3). Going still further, each block may be fitted to the topography somewhat independently, producing an irregular gridiron (see Fig. 4), and finally, in this type of adaptation, the gridiron may be composed of curved streets (see Fig. 5).

"So far, we may have succeeded in having the streets more or less parallel, and of course the distance between adjacent streets is twice the depth of a lot. But if the topography is very steep and irregular, we may have to abandon the parallelism of the streets, in order to run them with possible gradients. This makes irregular blocks and so, irregular lots (see Fig. 6). Perhaps the irregularity may be put into a park, and the residential blocks retained essentially parallel-sided. Perhaps, however, the residential blocks themselves may have to be irregular, and the differences taken up by interior playgrounds, or church sites, or exceptional and irregular lots. Here the pattern of the gridiron has disappeared, and the unity in design is in dominance of natural topography, and probably also in pleasant flow of curving streets, major and minor, recognizing the flow and the amount of traffic.

"As we have said, this degree of adaptation of layout to topography is easier with larger lots. Indeed, with really small lots the expense and waste is so great that it is usually better not to attempt small lots in such places, and the city may often be well-advised so to zone such areas as to force small-lot developments into places where they will pay the developer better, and so pay the city better, in the end."

Mr. Hubbard discusses the adaptation of lots to topography, in some detail, and adds, in conclusion, that the adaptation of residential land to subdivision is no simple matter either as a business proposition or as an esthetic problem, either from the point of view of the developer who buys raw land wholesale and sells houselots retail, or from the point of view of the city, which must ultimately be responsible for his mistakes.

"Economically, the whole point is what you get for what you pay. But the ultimate consumer is the community, and the community should allot its lands, each to its own best use, so that the whole may be more efficient. This means zoning—not only as between business and manufacture and residence, but as to different kinds of residence in relation to topography. The city should see that money is not wasted in unnecessarily overcoming topographic obstacles, for that leaves just so much less to go into the real values covered by cost or rent of houses. And the city should see that existing natural beauty, which as it stands is a real asset, is not wasted by the construction of residences injudiciously related to the ground or residences which could be better located in another place."

Fixing Lines for Future Widening of Village Streets without Present Cost

A CONVENIENT, efficient and safe way to fix lines for wider streets without immediate taking of land or liability for payment or damage, by the establishment of an official map under the Village Law of New York State, Section 179(e) et seq., is outlined by Frank B. Williams, Esq., in a recent bulletin of the Westchester County Planning Federation:

"The advantages and effect of fixing the lines for a wider street in this manner are as follows: There is no way in which the landowner can dispute the validity of the new line, as such. The establishment of the new line is not a *taking* of any land; it is not even a threat of taking. Streets have been mapped for forty years in New York City and no move has been made to acquire the land for a physical opening. There is no damage to the owner by the fixing of the line. The making of the map is not a cloud on the title, but, like zoning, a mere police regulation. (Matter of City of New York (Avenue D) 200 N. Y. 536. *Lincoln Trust Co. v. Williams Building Corporation*, 229 N. Y. 313.)

"And there is no injustice to the owner. He is still free to apply for a permit to build up to the old line. It is true that the building commissioner will refuse the permit, but only as a preliminary to the application of the landowner to the board of appeals for the right to build to the old line. And if there is any good reason why he should build to the old line, he is allowed to do so. If he can get a reasonable return without doing so, a permit is, and should be, refused; but if, for instance, a permit for a temporary structure is needed to increase the revenue so as to make it fair, the board will grant it. It is the same principle which has been so successful in zoning and variances which zoning boards of appeal grant to relieve undue hardship, but only when such hardship exists; and, with the hardship removed, the zoning ordinance as a whole stands.

"If you are met by the somewhat general objection of a well-informed lawyer, that the older statutes with regard to official maps were held unconstitutional and the new statutes will meet the same fate, your answer is that the older statutes were deficient in that they did not provide a remedy in cases of injustice, while the new statutes, drafted in the full experience of zoning, do give a remedy—the same remedy that the courts have held to be adequate in zoning, now upheld so completely by our courts. It is the board of appeals which has made zoning just, winning for it the emphatic approval of our courts, and it is the inclusion of boards of appeal in the new laws for official maps which makes these laws fundamentally different from the old laws and fundamentally sound."

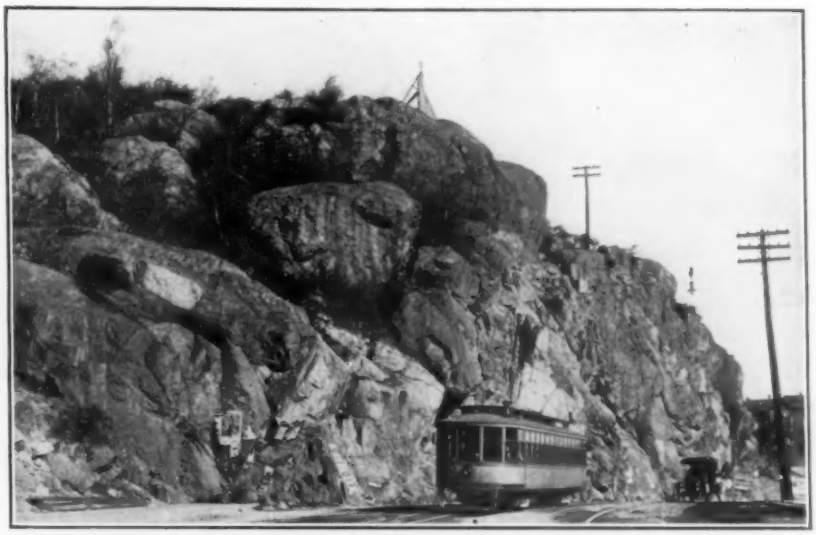
A Rock Barrier to Civic Progress

By JOHN WILSON
City Engineer, Duluth, Minn.

BETWEEN the westerly city limits of Duluth, Minn., and Pigeon Point, Canada, occurs the largest outcropping of gabbro in the world. This stone is very hard and tough and occurs in a series of great bosses along the north banks of the St. Louis River and the north shore of Lake Superior.

Duluth, with a population of 110,000, just naturally grew up between these protruding bosses and the water line, and now enjoys the distinction of being the tenth largest city, as to area, in the United States, and has an extreme length of over 24 miles.

One of these bosses, extending beyond its fellows, originally reached the water's edge and, sharply dividing the city into "East End" and "West End," has always been designated the "Point of Rocks."



AS THE POINT OF ROCKS LOOKED AT THE TIME THE STONE FELL AND DEMOLISHED THE AUTOMOBILE

Crusher Plant Installed

As appears on the accompanying picture, a roadway was finally constructed around the point by removing a small portion of the tip, filling in the ravines and reclaiming some of the low ground, but it has always been the ambition of almost every administration to open Superior Street, the city's main business thoroughfare, through the Point instead of around it. In 1906, the city purchased quarrying equipment and a rock crusher and started reducing the barrier to crushed rock for municipal purposes in the hope of making the project self-supporting.

The crushing of rock was continued for thirteen years, until 1919, when the Commissioner of Public Works shut down the crusher and dismantled the entire plant on the grounds that crushed rock could be secured at a less cost from commercial crushers. During this period the city records would indicate that approximately 55,000 cubic yards of rock had been removed, a little less than one-third of the total amount necessary to complete the opening of the street. The average cost of the work as indicated by these records was 86 cents per cubic yard of solid rock over and above the market value of the material produced. The discontinuance of the work occurred just at the time when the demand for crushed rock was increasing with the demand for extensive paving operations, and thus the project was deprived of the most advantageous period for real accomplishment.

About four years ago, a small portion of the ledge became loosened by the frost and rain and slid down the rocky face into the street, demolishing a passing automobile, but, miraculously, injuring neither of the occupants.

The city then appropriated $10,000 to finance the removal of about 3,000 yards of the overhanging material. While this was going on, there was a great deal of agitation for the completion of the work.

Extensive Plans Prepared

In preparing the final plans for carrying out the work, the city had four objectives in view: first, the opening of Superior Street; second, reducing the grade on Mesaba Avenue at its connection with Superior Street; third, utilizing the removed material in building a breakwater to enable a park to be constructed along the lakeshore by reclaiming ground adjoining a narrow strip of shore line

VIEW OF DULUTH ADJOINING THE GABBRO BOSS CALLED THE POINT OF ROCKS
The positions of the proposed roadways are indicated by crosses on the illustration

SCENE DURING THE REMOVAL OF A PORTION OF THE POINT OF ROCKS
The inclined seam in line with the lower side of the balanced boulder contains enough metallic silver and copper to keep old-time prospectors interested

but recently acquired by the city; and, fourth, to start the construction of a roadway up the hillside on a grade that would admit of street railway service. This service was to replace the inclined railway, a rather unique but antiquated structure up which cars are drawn by a cable to an elevation of about 550 feet in nine blocks, at which point it forms a junction with a surface line leading to Duluth Heights, a suburban village inside Duluth's corporate limits. The incline, together with the line to the Heights, now operates at an annual loss of over $40,000 and is further discredited by being unable to care for the rush hour business. The fourth was probably the most important feature of the whole scheme, as the proposed roadway offers the only feasible route leading from the wholesale and terminal districts to the Iron Range towns without making a circuitous trip through the congested business district, as well as providing for the operation of trolleys instead of cable cars.

To finance the work, the 1925 Legislature enacted a bill enabling the city to issue ten-year serial bonds not to exceed $500,000. In accordance with the provisions of this act, proposals were received for doing the work by contract, but when the city proposed to sell the bonds, a referendum election was demanded at which the bonds were voted down. The defeat of the bonds was undoubtedly largely due to the fact that people were at the time receiving their tax statements indicating an increase of from 15 to 20 per cent over last year, resulting from an extensive building campaign carried out by the School Board and also the construction of a new city hall on the part of the City Council.

Just how long the results of this election will postpone the work is hard to say, but it is quite evident that the friends of the project do not consider themselves defeated and that the matter will be given further consideration at a time more opportune for consideration on its merits.

The Literacy Test for Voters

IN seventeen states there are educational qualifications for electors. They are: Alabama, California, Connecticut, Delaware, Georgia, Louisiana, Maine, Massachusetts, Mississippi, New Hampshire, New York, North Carolina, Oklahoma, South Carolina, Virginia, Washington, and Wyoming. In Colorado the constitution gives the Legislature authority to establish such a test, and in North Dakota the constitution instructs the Legislature to establish one by law, but apparently no enabling act has been passed in either state.

In New Mexico the constitution prescribes that the right to vote shall never be restricted on account of inability to speak, read, or write English or Spanish except by a three-quarters vote of the electors voting in the state and at least a two-thirds vote in each county. In two states, Alabama and Louisiana, the voters may qualify either by a literacy test or by ownership of property. In Georgia the literacy test is one of five ways of qualifying.

Thus, "more than one-third of the state constitutions prescribe literacy tests for voting," according to facts and figures assembled by the Philadelphia Bureau of Municipal Research, and published in *Citizen's Business*, its official bulletin, of a recent date, under the title "A Literacy Test for Voters?"

"A literacy test," the study continues, "is an educational qualification which makes ability to read and write, to explain, or to speak the English language, a condition of the right to vote. The purpose has been to provide an intelligent electorate by excluding illiterates. At times the test has been used to bar from the suffrage classes of voters considered undesirable for reasons other than illiteracy. . . .

"Ten states, Alabama, California, Delaware, Georgia, Maine, Massachusetts, New Hampshire, New York, Virginia, and Wyoming waive the literacy test if inability to qualify under it is caused by physical disability. Four states exempt persons who had the right to vote, or who were 60 years old at the time the qualification was adopted. South Carolina exempts persons registered before January 1, 1898. In Oklahoma and North Carolina, the test appears in "grandfather clauses," in which exemptions are made of persons or descendants of persons entitled to vote before the adoption of the fifteenth amendment to the Federal Constitution in 1870.

"The last state to adopt a literacy test was New York. . . ."

The study was made with a view to determining whether Pennsylvania should adopt the literacy test and the effect that such a test would have upon the city of Philadelphia. As the study states:

"It is difficult to determine in the absence of statistical evidence what effect, if any, the educational tests have had upon the intelligence of the voters, the quest for education, the size of the electorate, or the quality of government."

Grade Separations at Arterial Highway Intersections

Depression of the Central Roadway, and Widening to Provide for Service Roadways

By CHARLES U. POWELL

Engineer in Charge, Topographical Bureau, Borough of Queens, New York City

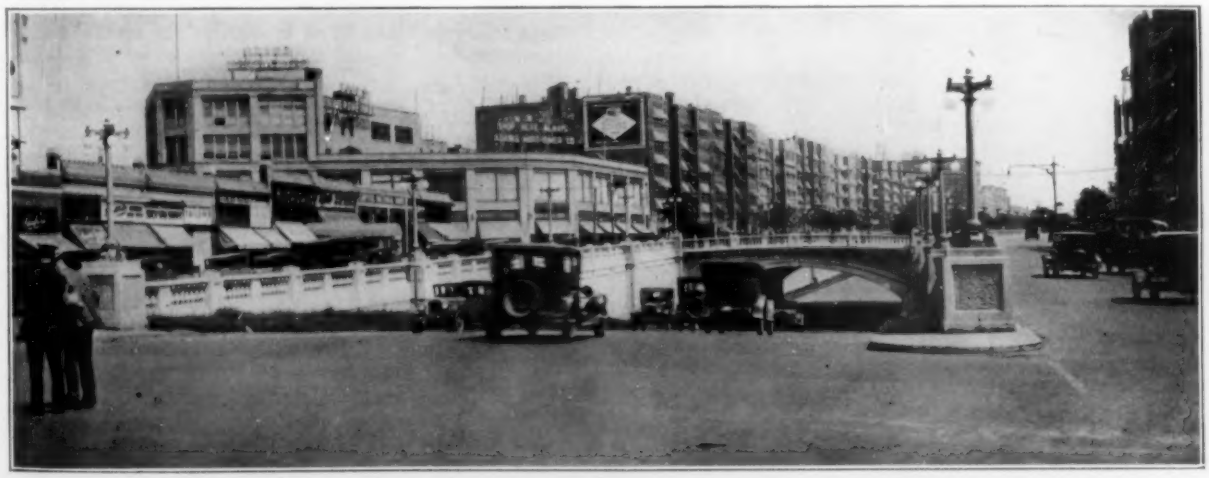
SEPARATING the grades of arterial highways at their intersections has long been recognized by city planners as a matter of great importance in all of the large cities throughout the United States, owing to the increasing use of motor vehicles, both for passenger service and for trucks of large and small capacity. As a rule, however, this need is not recognized by the public until it has become too late to apply the remedy, since the increase in traffic is coincident with the erection of buildings; and if buildings must be torn down in order to acquire a sufficient width of right-of-way to effect a separation, the expense is too often prohibitive. For this reason, foresight is essential in planning for separating grades, so that the necessary width of right-of-way can be acquired years before traffic has fully developed and while the land is still cheap and unencumbered.

Traffic Congestion in Queens

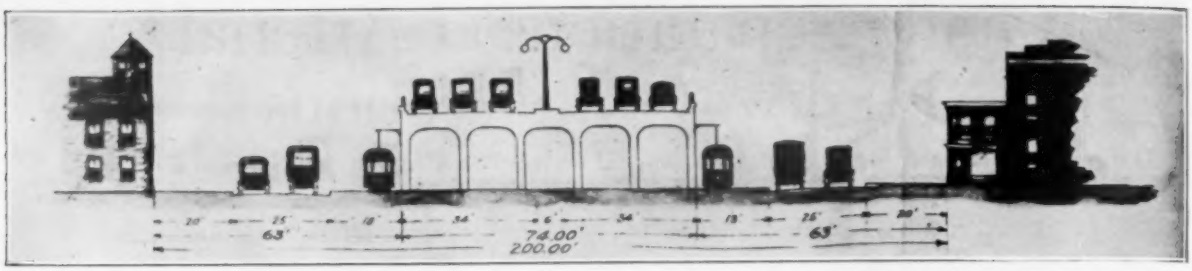
The borough of Queens, the largest in area of the five political divisions comprising the city of New York, has had a phenomenal growth in population during recent years, and this growth has been accompanied by the erection of dwellings built in conjunction with garages, as well as numerous public garages, and garage colonies in the vicinity of apartments and multiple-family houses. Thus a large percentage of the present population of a million people living in Queens own their own cars. Moreover, the main highways in Queens Borough serve to transport the motor traffic from the thickly settled parts of the city, such as Manhattan and Brooklyn, to the rural districts of Nassau and Suffolk Counties, including the eastern end of Long Island. The aggregate of this combined local and through traffic reaches a tremendous total on Sundays and holidays, congesting the main arteries, such as Northern Boulevard, Jericho Turnpike, Queens and Merrick Boulevards, and compelling thousands of automobiles to wait in long lines at the crossings of important highways during the intervals when cross-traffic is moving. Conditions such as these rapidly become intolerable. The city officials and engineers connected with the Topographical Bureau who have charge of the work of city planning and establishing the grades of the streets have long been studying this question of grade separation of important highways, and have made considerable progress in its solution.

In each case of grade separation, two important problems require attention. The first problem is to provide for a sufficient width of right-of-way for a distance of several hundred feet on each side of the crossing, so that when the time is ripe to effect a separation of grades, there will be no buildings that would necessitate removal within the area required for the roadway. Secondly, the street design and width should be of such a character that a grade separation can be effected without raising the elevation of either highway very much above the normal grade of the surrounding territory; in other words, the separation of grades should be effected by depressing one of the roadways rather than by raising the grade of either road above the general level.

For example, if two highways, each 100 feet in width, cross each other in a rural district, there may be no necessity for grade separations for a number of years to come, because both streets may not yet have been constructed throughout their entire lengths, or traffic developed to an extent that would warrant the expense of separation. Where the abutting property is of low valuation and the cost of the improvement would be locally assessed on the property to be benefited, the assessment would in such cases be so large in proportion to the value of the land as to be confiscatory. When separation is to be effected by depressing the central roadway before the sewers have been built, there is an additional element of cost due to the necessity of draining the depression, as the water would have to be pumped out after every storm. Where a fill is required in order to grade the highway, the lots on either side would be left low, which would make their development costly and difficult. When, however, the territory becomes built up and the land increases in value,



WHERE THE GRAND BOULEVARD PASSES UNDER FORDHAM ROAD, IN THE BRONX, NEW YORK CITY
In the nine other grade separations on the Boulevard, the intersecting streets have been depressed



THIS PLAN OF AN ELEVATED CONCRETE VIADUCT CARRYING THE CENTRAL ROADWAY OF QUEENS BOULEVARD OVER GRAND AVENUE, IN THE BOROUGH OF QUEENS, NEW YORK CITY, WAS STRONGLY OPPOSED BY RESIDENTS OF THE LOCALITY AND WAS ABANDONED

it becomes better able to stand the assessment required to defray the costs of constructions and development.

It is therefore the policy of the Topographical Bureau to advocate acquiring a width of right-of-way of from 130 to 160 feet for a distance of from 300 to 500 feet on each side of the highway intersection, for the road which is to be depressed, so that grade separations can be effected at a later date. Foresight in planning years ahead for grade separations and in acquiring the necessary land while it is cheap will not only save thousands of dollars of taxpayers' money, but will make possible such separations after the area has been built up, which would be entirely out of the question if the city had waited for values to develop and buildings to cover the land required for the separation before authorizing the acquisition of the necessary strip.

Depress, Rather Than Elevate, One of the Cross-Roads

When separation is to be effected, it is usually found that opposition on the part of property owners will prevent the carrying out of any plan whereby one of the roads is to be raised above the general level. An instance of such opposition was the case of Queens Boulevard and Grand Avenue, in the Newtown section, one of the most congested crossings in the borough. In 1924, after an elaborate study, the Topographical Bureau prepared a plan for carrying the central roadway of Queens Boulevard over Grand Avenue to a width of 74 feet, in the form of a reinforced concrete viaduct, with 4 per cent approach grades, at an elevation of 20 feet above the present surface. (See the accompanying drawing.) The cost was estimated at $300,000. Although Queens Boulevard is 200 feet wide, so that 126 feet or 63 feet on each side of the structure would be left for service roads and walks at the present ground level, the residents of the locality fought against the adoption of the plan, stating that "the consequential damages to existing buildings would be enormous," that the structure would be an "eyesore, a Chinese Wall," etc. As a result of the opposition, the project was dropped. It has since become the practice of the Topographical Bureau to recognize more fully the human element in the equation, and to provide for grade separations, first, by mapping and later acquiring a sufficient width of right-of-way, before houses have been built, so that a central and two service roadways can be constructed at a later date without tearing down any buildings that would otherwise have been put up; and, secondly, by planning to depress the central roadway, and to keep the side roads and walks near the present surface grades, in order to avoid such consequential damages to buildings as would result from erecting an elevated viaduct above the ground level.

Essential Provisions

In order to separate the grades of two intersecting highways it is essential that one of the streets should be widened to at least 130 feet for a distance of from 300 to 500 feet on each side of the intersection, to provide space for sidewalks and three separate roadways. Three roadways are required in order to provide a central artery for through traffic to pass under the intersecting highway with a minimum clearance of 14 feet; or allowing for construction, a difference of at least 17 or 18 feet in grades. In addition to the central artery, which should be of ample width, two service roads, one on each side, providing frontage to the abutting property at grade, are required to accommodate the local traffic and the traffic about to turn into the cross-streets or to enter the main artery from one side or the other.

When a grade separation is to be provided for highways 80 feet in width, having a standard 44-foot roadway and two 18-foot sidewalks, an increase in the width of right-of-way to 130 feet would provide room to continue the depressed central artery without reduction of width, also for two 28-foot service roadways, two 12-foot sidewalks, and 3 feet on each side of the central drive for construction purposes. Where the main highway is 100 feet wide, with a 60-foot standard roadway, it is preferable to increase the width to 160 feet in order to leave room for the depressed central artery, with two 28-foot service roadways, two 18-foot walks, and 4 feet margin on each side for construction purposes. Where the highway is 150 feet wide, as is the case of Grand Central Parkway, or 160 feet in width like Nassau Boulevard, or 200 feet as is Queens Boulevard, it is generally feasible to provide for grade separations at street intersections, without acquiring any additional width of right-of-way; as, in such cases, a rearrangement of the roadways can be made, if necessary within such widths, so as to obtain a depressed central artery, with service roads and walks, at grade.

On the Grand Boulevard and Concourse, New York

In the Bronx, a satisfactory solution of the traffic problem has been obtained in the case of the "Grand Boulevard and Concourse," a 182-foot artery extending from 161st Street to Mosholu Parkway, near Van Cortlandt Park, a distance of four miles. Grade separations have been provided for at ten different highway intersections. At nine of these crossings, the intersecting streets pass under the Grand Boulevard, either in their entirety or in the form of a central roadway, with side roads ramping up to meet the Boulevard service roads, as in the other seven. The exception is at Fordham Road, where the crossing was reconstructed in 1923 at a cost of $150,000, so as to depress the central roadway of the Boulevard to its full width of 53 feet, in order to pass under Fordham Road, with approach grades of 5½ per cent. In this reconstruction work, the side roads, each 35 feet in width, and the walks and malls were not disturbed. This crossing is shown in the illustration. As no part of the new structure, excepting the lights and balustrades, was constructed above the original ground level, the effect is pleasing to the eye, and does not interfere with the supply of sunlight to abutting buildings, or dwarf their appearance, as would an elevated structure. It is also evident that if the necessary width of right-of-way had not previously been acquired by the city, the buildings shown as abutting on the boulevard would have occupied the land needed

for the improvement; and in consequence no grade separation project could have been brought about, because of the prohibitive expense and damage.

It is estimated that the cost of grade separations, where an elevated structure is employed for the central roadway, will average from $150,000 to $300,000 for each intersection, depending upon the width, the length of approaches, and the additional land area to be acquired. Where building damages also occur, the cost may rise considerably above the latter figure. Where the central roadway is depressed, the total cost is about 25 per cent higher than in the case of a viaduct. In general, with short approaches of from 200 to 400 feet on each side of the cross-road, a grade up to 6 per cent can be used; and where heavy trucking is not permitted, or can be confined to the service lanes, an even steeper gradient may be employed, if necessary, along the line of the main artery. Where the topography is such that the cross-road is in a valley and the main artery on a ridge, both highways can be built at a low gradient, and the ramp service roads, leading into the main artery, can be constructed with an 8 per cent grade, if required to meet the conditions.

Capitalizing the Collection of Carcasses

THE sum of $37,500 was paid annually by the city of Chicago prior to 1897 for the removal and disposal of dead animals found in public places. In 1907, authorized by the Legislature of Illinois, the city entered into a contract to turn the compensation for this service toward the city, and for ten years a contractor paid the city $25 a year for the dead animals he collected. In 1917, when war conditions created a premium on animal by-products, a contract was made which netted the city $5,000 a year for five years. Market changes, however, brought heavy losses to the contractor for the last three years of the contract, and in 1922 the city of Chicago was compelled to make a three-year contract to pay the sum of $57,000 annually for this service, in monthly installments. Another contract with the same company was in force until February 2, 1928. The Municipal Reference Library of Chicago reports that in 1927 the contractor collected the bodies of 1,949 horses, 49,504 dogs, 15 cows, 50 sheep and goats, 9,980 cats, and 39 miscellaneous animals—a total of 61,537.

The Library has included in its report extracts from the Bulletin of the United States Public Health Service which show what other cities are doing in regard to this service, and almost at the start it is stirring to know that in 1927 Detroit's garbage collection organization, besides disposing of thousands of dead domestic friends, had to make way with skunks and deer.

It has been shown above that Chicago for a few years took in quite goodly sums in exchange for commodities that otherwise would have been nuisances, but that of late years she has been under heavy expense to get this removal work done. Other cities that report having made contracts for such work are Baltimore (for bodies weighing more than 200 pounds), Cincinnati, Newark, N. J. (where the Humane Society was the successful bidder), Pittsburgh (where the rubbish and garbage contractors do the work), St. Louis, and New York City, and these cities have had no revenue from the collection.

In 1927 the city of Milwaukee received an offer from a commercial concern to do all the work that the city had been contemplating to do in a proposed municipal rendering plant, and to do it without cost to the city, agreeing also to collect the larger dead animals. Although the sum of $50,000 was set up in Milwaukee's budget for 1928 to build a rendering plant, it is predicted that such a plant will never be built, but that one of the local packing plants will be given permission to erect a modern dry rendering plant capable of handling the situation.

Most of the cities reporting collect the small dead animals through their waste disposal departments. Boston and Buffalo license private concerns to collect and render the carcasses of the larger animals. In Cleveland a private rendering company either pays the city for usable carcasses or charges the city for removing them, according to conditions.

Los Angeles is being paid $105 a month by a local refining company for collecting and delivering to the company the dead animals in the main city. Philadelphia also gets a small revenue from a rendering company for the larger animals.

The best method seems to be a matter for local decision, dependent on the existence, facilities, and enterprise of a local commercial plant, in competition with the city's vision of a tax-supported rendering plant.

Winfield Has a New Fireproof City Hall

THE new City Hall in Winfield, Kans., is one of the finest buildings in the business section of that city. It was completed in 1927, at an approximate cost of $62,000, this being for the general contract alone, which included the plumbing, heating plant, and electrical installation. The building site, office furniture and fixtures, etc., brought the total investment up to $80,000.

The building, which occupies a site 30 by 140 feet, is a fine two-story, brick-and-concrete, fireproof structure, and it is trimmed with Bedford limestone. The floors throughout the building are of concrete, and, so far as possible, all combustible material has been eliminated in its construction. As an additional safeguard, all exposed window openings are protected by wire glass set in metal frames, and a door at the rear of the building is protected by a standard rolling steel fire-door.

The office of the water, gas, and electric departments, as well as that of the city clerk, occupy a large room on the first floor at the front of the building. This is unusually convenient, as one may pay his gas, water, and electric bills at one counter. The windows of this room are equipped with Venetian shades, and the office fixtures are modern in every respect. A large, roomy vault occupies one corner of the room. The police chief and city manager also have an office on the first floor.

The city engineer's office and a well-equipped materials testing laboratory are on the second floor. The park and street departments also have an office on this floor, and the city council meeting room is located here.

Schmidt, Boucher, and Overend, of Wichita, Kans., were architects for the building.

O. J. SWANDER.

THE CITY HALL IN WINFIELD, KANS.

County Jails and Workhouses

Making the Best of a Necessary Evil

By TOM H. HAYNES

DIRECTOR, DEPARTMENT OF PUBLIC WELFARE, KNOXVILLE, TENN.

THE prison is a necessary evil that has been with us for several thousand years. We read of the Biblical Joseph, born about 1745 B. C., being thrown into prison, "a place where the king's prisoners were *bound*." We find Simon Peter in prison, "between two soldiers *bound* with two chains." We see the Apostle Paul in prison on several occasions, and each time he is manacled and chained.

These few citations prove that prisoners did not then enjoy even the small amount of freedom they now have. Therefore, we must admit that some progress has already been made, though at a snail's pace.

The Prisons of the Past

The reforms accomplished can only be realized by considering what prisons once were. The shocking picture drawn by John Howard of the state of prisons toward the close of the eighteenth century will last for all time. They were for the most part pestiferous dens, overcrowded, dark, foully dirty, not only ill-ventilated, but deprived altogether of fresh air. The wretched inmates were dependent for food upon the whims of their jailers or the charity of the benevolent; water was denied them except in the scantiest proportions; their only bedding was putrid straw. Every one in durance, whether tried or untried, was heavily ironed. All alike were subject to the rapacity of their jailers and the extortions of their fellows. Jail fees were levied ruthlessly, also a tax or contribution paid by each individual to a common fund to be spent by the whole body, generally in drink. Idleness, drunkenness, vicious intercourse, sickness, starvation, cruelty, chains, awful oppression and everywhere culpable neglect—in these words may be summed up the state of the jails at the time of Howard's visitation.

Among Howard's proposed reforms was a plan to keep the inmate of every cell under close observation, and all were to be reformed by solitude and seclusion while constantly employed in remunerative labor, in the profits of which they were to share.

About this time the discoveries in the southern seas led to the adoption of penal exile in preference to other suggested improvements in the English prison system. Then began the deplorable and heart-rending villainous deportation by which prisoners were torn away from their loved ones and carried to unknown lands, never to be seen again by those dear to them.

Reform Has Not Kept Pace with Civilization

In contrasting the progress, or lack of progress, over a shorter period of time—half a century or less—we are abruptly brought, however, to the realization that prison reform is lagging far behind the onward march of civilization. For instance, in the latter part of the nineteenth century, we find transportation sitting on an ox-cart in mud up to the axle, trekking its way through ravines, over hills, rocks and ledges, on narrow roads, at a rate of two and a half miles per hour. Today we sit in our limousines and breeze over wide paved boulevards at speeds faster than we ought to travel. But in the same period the changes in prison conditions in most parts of the United States have been almost too small to be noticeable.

In suggesting remedies, let me go on record as not being akin to a sentimentalist. The essayist wishes to state that so far as they relate to the treatment of prisoners, such words as coddle, caress, fondle and pet may be erased from the dictionary. But I demand that at the same time the words torture and barbarity shall also be deleted. Prisons are used for only one purpose, namely, the protection of society from crime. The calamity howler with a single-track mind, demanding inhuman punishment of prisoners and dubbing all those who oppose him as sickly sentimentalists, can hope for nothing more than this. Therefore, we are all striving for the same end, and the only conflict is in the methods employed.

If all law violators who are incarcerated were never to be released, then their treatment would be a matter of personal interest to them only. But there is not a single prisoner today in the state of Tenessee, for example, who is certain to remain there during the rest of his life. Therefore, what happens to the wrong-doer in prison is of vital importance to the whole of society, for the reason that he will probably again be at liberty. Shall we endeavor to turn him out as a reformed, educated man, equipped with a trade by which he may earn an honest and decent living, or release him as a hardened criminal to prey upon the community?

How Shall We Better Our Prison System?

First, we should begin in the Criminal Court. I believe the plan to have a board advisory to the criminal judge should be adopted and every possible effort put forth to have such a board legally constituted, composed of persons who are experts in their particular profession and qualified to advise the judge intelligently in each case, so that he will be in a better position to render a just decision. It has been suggested that this board be made up of a psychiatrist, a social worker, a doctor, a preacher, and a lawyer, who should make their respective examinations and investigations and embody their findings in one report to the judge. This system would not only permit the paroling of deserving petty offenders without sending them to prison, but would safeguard the public against the release, on similar offenses, of such criminals as Hickman, thereby preventing subsequent crime. Society should demand that its rights to protection be considered and safeguarded in the treatment of offenders. The present method of "dishing out" the same sentence for similar offenses regardless of the make-up of the individual, will never guarantee such protection.

A successful prison system can be based only upon the "indeterminate sentence." The offender should be exiled until such time as it is best for society's interests that he should be returned. The time would depend partly upon the nature of his offense, as an example to, and effect upon, other potential criminals; but it should depend more especially upon the character of the man himself, as it has developed under wise and careful guardianship and training. We do not isolate individuals suffering with contagious disease for a definite period of time; but until they reach a stage or condition when it is safe for society to have them returned. The time for the parole of a prisoner cannot be determined mechanically by a calendar or clock. No prisoner should be discharged who is unable or unwilling to become a responsible and law-abiding citizen.

To Make the Jail Do a Worth-While Job

The jail must be—but how illogical to make it the renewer of its own problems, an educational institution for criminals, from which its students go out better equipped than when they entered, to practice the arts by which they shall return to it when caught again! In this article, Mr. Haynes tells how he believes this vicious circle may be cut and cleared away. He shows that the time of imprisonment may be made an opportunity of readjustment, to the end that the inmates may become social assets when released. The restoration and maintenance of earning capacity and the responsibility for family support are important elements of this job of the jail.

The County Jail Should Go

County jails and workhouses, so far as the county is concerned, should be abolished—and most of them demolished—and replaced by state-owned and controlled institutions. I know of no sound reason nor even a plausible excuse in favor of the county's operating penal institutions; while, on the other hand, the incontrovertible arguments are numerous.

First, in no criminal case is the county the aggrieved. The offense is against the commonwealth and it is an obligation of the state to take care of, and inflict punishment upon, its offenders.

Second, by the state's having control of all the penal institutions now operated by the several counties, a definite system could easily be adopted and the plan carried out with uniformity, which is almost impossible under the present arrangement.

Third, this plan would divorce the offices of sheriff and jailer, which should be done by all means. The sheriff's chief function is the enforcement of the laws and the apprehension of criminals. The job of managing the penal institutions requires the full time of a person trained for that particular kind of work, and the office should be taken out of politics and let solely on qualifications ascertained by competitive examinations.

The Local Jail for Detention Only

The local jail (now called the county jail) should be used exclusively for housing and detaining persons awaiting trial and should be so constructed as to permit the sleeping of prisoners separately, with toilet and running water in each cell. Sanitary provisions should also include a reception department with room for examining, bathing and delousing new prisoners; as well as cells for temporary detention of them, pending examination. Here they should be examined by the prison doctor, who should have available laboratory facilities, for the purpose of determining whether or not they need treatment. Those found to be suffering from contagious diseases should be isolated. All their clothing should be sterilized and properly marked for identification. Bathing upon entry should be compulsory, after which they should don the prison uniform. There should be a hospital ward for the purpose of isolating and treating those requiring medical attention.

An assembly room should be provided for religious and recreational purposes. A central dining-room is highly desirable, as meals should not be served in the cells, for the reason that food particles attract vermin. Religious endeavor should come from outside, but a uniform system of regularity must be worked out with the various religious organizations of the community. A recreational program is essential to a well-ordered prison system.

A separate apartment under the supervision of a trained matron for the use of female prisoners is imperative. Preferably a whole floor should be used for this purpose. However, in small jails where this is not practical, this compartment must be so located as to prohibit communication between the sexes.

District Penal Institutions

State institutions can be substituted for workhouses. They should be located, after a careful survey by competent authorities, at strategical points throughout the state sufficient in number to take care of the situation. This would necessitate the dividing of the state into districts, probably five or six in number, and allowing the counties to send their criminals convicted of offenses other than felonies, to the institution in the district in which they are located.

At the present time only a very few of the ninety-five counties in the state of Tennessee are prepared, or even attempt, to work the prisoners that are sentenced to labor. They coop them up for the full period of their incarceration, and force them to be idle, which in itself is scarcely less than criminal. Men are being sent to workhouses or confined in county jails for minor offenses punishable only by fines. This constitutes nothing more nor less than imprisonment for debt. The man who is able to pay or secure his fine goes free, while the one less fortunate financially is compelled to go to jail. A parole board to function in cooperation with an examining board allowing the convicted person to remain with his family and be employed by outside industries, dividing the remuneration between the state and his family, would prevent this abominable practice.

The district institution should be situated on a farm of considerable size. Not only is outdoor work desirable for many prisoners, but the place of agriculture in the life of every community should be learned by experience.

The institution should also be equipped with various industries and facilities for teaching and training the inmates in vocations adaptable to the individual.

Grading the Prisoners

Authorities differ as to the number of grades into which the prisoners should be divided. But it is safe to say that the buildings should be constructed so as to house adequately at least three classes:

An intermediate class, composed of new arrivals and those whose conduct has proved that they are unable yet to use to the best advantage the liberty the institution could grant. This department should have a well-planned and adequately financed diagnostic clearing-house, where the prisoners may be kept for a period of observation and study; for classification and mapping out of the progress of training and treatment that would be necessary to employ in rehabilitating them. After the diagnostic or observation period the prisoner would then be advanced to a higher class or reduced to a lower grade, in accordance with the findings in each individual case.

First-class prisoners should have as close an approximation to the free life of the outside world as is consistent with their still being wards of the state. Those who could not adapt themselves to these free conditions should be sent back to a lower grade with restricted privileges.

To the third class would go those who show themselves unable to live even according to the regulations of the intermediate class, and be placed under closer observation, confinement, and greater restrictions. This class will give the psychiatrist his chief field of observation; among them he would find the insane and the hopeless mental defectives who should be removed to suitable institutions.

Making Reformation Possible

A thoroughly equipped up-to-date hospital should be connected with the institution, not only to care for emergency cases but to make every effort to remedy physical defects and put the prisoner in the best possible physical condition.

A school should minister to every prisoner and stimulate his desire to pursue some form of study. Elementary education should be compulsory and an opportunity for studying in the higher grades available to those who care to do so. Emphasis should be placed on vocational training.

The industries of the prison should be conducted, not primarily for a financial return to the state, but with the idea of preparing each man for the work to which he can best apply himself upon release.

All prisoners may be paid adequate wages for their labor, exactly the same as workers outside, and support themselves decently; paying for all they receive while in prison and contributing to the support of their families. In any event the family of the incarcerated should participate in his earning to the extent of their real needs.

The religious appeal, here as well as in local jails, should come from outside, through the different religious denominations, in such a way as to emphasize the note of human brotherhood. This would cause the prisoner to feel that the outside world was interested in him. This would be more effective and beneficial than a uniformed prison chaplain working under state regulations forcing the attendance at services.

This plan would make it possible intelligently to carry out the indeterminate sentence, which should never be attempted without a prison system under which men shall have every opportunity and encouragement to readjust themselves, physically, mentally, and morally.

The Follow-Up

When a prisoner is released, it should be done under a parole system. He is only a convalescent and should not be turned loose on society without the arm of protection and the guidance of competent authorities. It is an unequivocal obligation of the state to place this man back into society, not only with an earning capacity but to see that his earning ability is employed under supervision. This should last until such time as he is able adequately to take care of his own needs.

In the March issue of The American City appeared two articles of special interest to municipal police departments: "Urgent Need for Greater Efficiency in Criminal Identification;" and "How to Take Finger Prints." See pages 116 and 117. Also in the May issue (page 109), "Police Functions Best Performed by Men and by Women Police Officers."

A Plea for a "Theatre of Youth"

By CONSTANCE D'ARCY MACKAY

CONSTANT talk about the movies has made even the youngest children theatre-hungry. The mechanical theatre has its place in the life of the child just as the automobile has: not to go to the movies is to be a freak, an exception, that thing abhorred of childhood whose standards are mass standards. ("Can't we go, mother? All the other boys and girls are going.") The next question is, if they go—and go they will—what movies shall they see? Where shall they be found?

It is in answering this question that the uncertainty and paucity of the material provided for them become apparent. In the larger cities this may not be true; but in smaller towns there are long stretches when no movies suited to juveniles are shown at the local theatres. . . .

. . . . Edward Yeomans, in "Shackled Youth," writing of American children at the films, says: "When you proceed to substitute for these highly nutritive things (the fairy story, fable, myth, and folktale) the feverish stupidity of the standard moving-picture shows, censored or not, and the defilements of the sensational theatres, you proceed to destroy souls. All the green shoots of imagination, from which alone have ever come any harvests of creative ability, are ironed out and scorched. For older people they may be tolerated, as a moral equivalent, perhaps, for the saloon. For children they are, to use Mr. Wister's phrase, a pentecost of calamity."

An American mother said recently: "Unless you first see a film yourself, you can never be sure of what you are taking your children to witness. It may be a movie of ranch life in the West, with stirring scenes, cowboys, horses, corrals and fine vistas of the plains. Then in the midst of an otherwise clean story there will suddenly be up-thrust a brief glimpse of a gambling saloon where tawdry women are lolling. In such a picture recently—a movie by a famous sage-brush author whose books boys read and adore—the villain, implored by a common girl whom he wished to cast off, first burned her arm with a cigarette, and then kicked her. Half-dressed women sat on the knees of cowboys, drinking and fondling them. You would not take boys of nine and eleven for a trip through the underworld, showing them its debauchery. Why should they see such things in the movies? Consider the short films labeled "Educational Films." Some of them are amusing; but seventy per cent of them are vulgar horse-play: the jazz wedding, or a son-in-law literally kicking his mother-in-law out of the house. Why call them "educational"? Yet so they are billed in every movie house in the land.

Then there are the children of the immigrant population to be considered. Walk along New York's Bowery any spring night, and look at the signs. Sixty per cent of them are films of which no uptown theatre has ever heard, and the posters show them to be movies of a violent, lurid nature.

This is the dark side of the silver screen. Yet there is its bright side which must also be taken into account.

A stifling night in a New York slum: a small, cheap theatre where films get a showing after they have become shop-worn. A film of whaling days is in progress, its story clean as a breath of ocean. A picture of that ocean silvered with the moon. The whaler, all sails set, is a beautiful thing to watch, and the eternal lure of ships and of sky and water is cast over an audience thirsty for cool winds, on youth with no heritage but the pavements. Into the clamor and ugliness and strain of a huddled existence blows the eternal breath of beauty and adventure. What a film for boys of eight to twelve! In the audience on this particular night were children, thronging like sparrows, and it so chanced that the short educational film was a very pretty affair: "The Toy Shop," with a doll romance. Small girls in the audience were spellbound.

Yet how often is such a thing possible? Only once in a blue moon. If only that blue moon would shine oftener, and not suffer from almost total eclipse!

Just as in children's plays, in children's movies there are two ages of children to be considered: the ages of six to ten, when interest in myth and fairy tale predominates; and from eight to thirteen, when adventure and hair-breadth escapes interest boys and when camp stories and budding romance interest girls.

For any one who will take the time to observe it and jot it down, there is a distinct "movie literature" for children. The trouble is, it is not systematized, not available when most needed, and gone before it is recognized. . . .

Said a movie observer recently: "I am all for building up a movie literature for children that can be used again and again just as books on the library shelves are used again and again. And I would have this an *original* literature, its stories totally distinct from what children read. Why? Because after consulting children's librarians from coast to coast I find that they all agree that after a child has seen a classic in the movies he no longer wants to read it." The foam has gone from "Two Years Before the Mast." The excitement has evaporated from "Treasure Island."

Grant that the beginnings of such a movie literature exist: how are they to be secured, to be routed?

Several noteworthy attempts at finding a way out have already been made. . . . . The need calls for local energy and initiative to actualize such a theatre through such channels as the Federation of Women's Clubs; the Parent-Teachers' Association; child study clubs; boards of education, and boards of trade. A knowledge of budgeting, of procedure, of obtaining up-to-date films and a suitable, accessible (public school) auditorium must be obtained before work can begin in this department of the Theatre of Youth.

Such a theatre must be suitably and attractively housed. The children must be given a local pride in it. It must, above all, start off well and with a flourish. Boy Scout Saturdays or Camp Fire Girl Saturdays. Good films—and new ones—equaling those of other theatres. Cheap seats. Perhaps a subscription or a coupon system. On one afternoon a romantic film, a history film and a nature film may be given, provided they are the right length. Programs must be planned and accounted for long in advance. Famous people passing through town must be secured for brief talks if possible—talks such as boys and girls delight in. An aviator. A world sailor. A mountain climber. A juggler. A pirate to sing pirate songs in costume. A writer of animal stories or girls' books. A magician. A story-teller. An occasional one-act play.

The Theatre of Youth! A Better Movie League for Children so planned that it will reach from coast to coast, routed through small towns and cities.

It is absurd to say that it is not possible. One has only to look at what the Little Theatres have accomplished to see how feasible the plan might become. What an extraordinary opportunity it opens to ambitious young women with leisure and theatre talent! No need to leave their own home towns in search of Broadway, of Greenwich Village or of "the Loop"! Here is a whetstone for their ambitions within easy reach!

A Theatre of Youth—A Better Movie League for Children! A dream, you say. Yet all the great accomplishments of the world are only dreams made manifest.

—From Children's Theatres and Plays, D. Appleton & Co., New York, 1927, a review of which appeared in THE AMERICAN CITY, February, 1928, p. 183.

FORWARD STEPS

Reported by

Municipal Officials, Chamber of Commerce Executives, and Others

Beaumont's New Auditorium Speeds Up Civic Affairs

BEAUMONT, TEXAS.—The new municipal auditorium at Beaumont, which is combined with the City Hall, from the date of its opening early this year has proved a valuable adjunct to the civic life of Beaumont and of all east Texas.

This building was erected at a cost of $300,000. The office portion covers two stories. Space is given for a balcony to the auditorium. The downstairs seating capacity of the auditorium is 1,667 and of the balcony 755, a total of 2,422. The aisles are so much wider than required by regulations that for any major occasion portable seats may be arranged to accommodate 500 additional people.

BEAUMONT, TEXAS, CITY HALL AND AUDITORIUM

A first practical proof of the excellence of the acoustic qualities of the auditorium was given by an opening performance by no less a personage than Paderewski, followed a few evenings later by John McCormack.

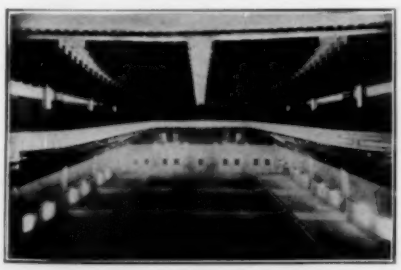
The stage is 30 x 37 feet in the clear with considerable space in the wings and with six well-equipped rooms. Excellent electric illuminating equipment has been provided to enhance the beauty of the "valance border" and "grand drapery" with various neutral back-drops.

The auditorium is available for reservation for any type of public gathering not considered radical or unlawful. When no admission is charged, these reservations are without charge. When there is an admission fee, the rental rate varies from $50 to $200, according to the type of performance. In its four months of operation the auditorium has been used 67 times by various gatherings for almost every kind of purpose, including dress rehearsals for the various activities. The revenues during the same period have been $950.

Most of the gatherings have been of a public non-revenue-bearing nature, including a civic rally conducted by the Chamber of Commerce, in which practically every organization in the city took part. The building was also used for the State Democratic National Convention, and for three days of that convention it was filled to capacity. Commencement exercises of the Beaumont high schools were held in the auditorium to great advantage, and for the first time in the history of the city there was a building with ample room to accommodate all those who wished to attend such exercises.

The American Legion and various fraternal and civic organizations have also had occasion to use the auditorium since its opening, and reservations of the building have been made for eight state conventions to be held in this city during 1929.

P. F. LAWSON,
Beaumont Chamber of Commerce.



INTERIOR VIEW OF BEAUMONT AUDITORIUM

As a part of the bond issue of $43,680,000 *recently approved in Allegheny County, Pa.* (*see page* 5) *a* $6,000,000 *auditorium is to be provided in Pittsburgh.*

A Civic Symphony Orchestra of Brilliant Achievements

OKLAHOMA CITY, OKLA.—The Oklahoma City Symphony Society completed its fourth season recently in a manner so triumphant that a short series of outdoor summer concerts has been planned.

This is the only organization of its kind in an American city of 160,000 population to be supported by civic guarantee. Considering that the state was opened for settlement only thirty-nine years ago, and that since that time it has accomplished phenomenal material development, the very fact of a symphony orchestra of a high order of excellence is remarkable. But that Oklahoma City has taken the time and the trouble to develop such an orchestra from her own citizens is more than remarkable—is unique.

The orchestra has no full-time salaried players; in fact, there are scarcely a half-dozen professional musicians in the whole organization, which is a marvel of cosmopolitanism and community fellowship. Next to the university professor playing the bassoon sits the full-blooded chief of the Delaware Indians playing the clarinet. (His regular job is that of fireman.) Farther on sits Alfred Nave, oboist, who has had a wide experience in symphony work in Paris and New York. The tuba player, who is also director of the local fireman's band, has played in the orchestra of several northern and eastern opera companies. The main support of the symphony, however, is the Oklahoma City school system. The high school symphony develops annually a well-rounded symphonic instrumentation from which the more mature organization recruits its players.

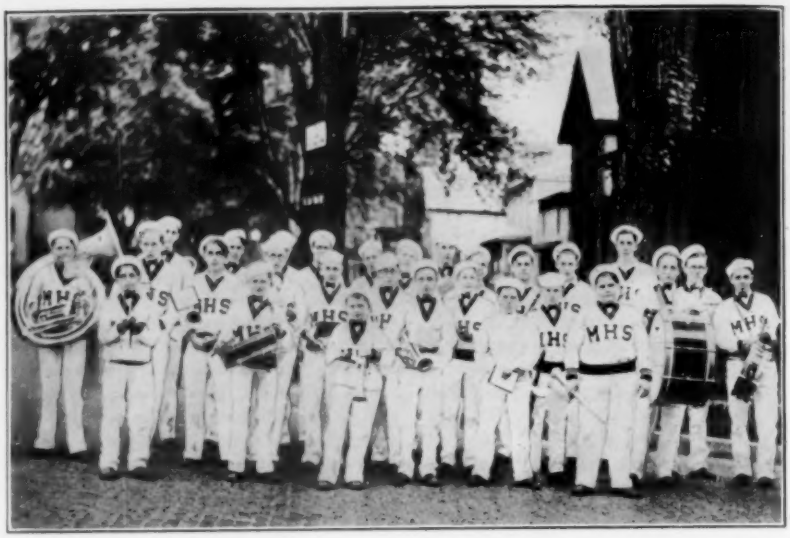
The instrumentation of the orchestra includes 26 violins, four violas, six cellos, four double basses, three flutes, two oboes, with English horns, four clarinets, two bassoons, four French horns, two trumpets, three trombones, tuba, timpani, drums, traps, and piano. Although there are certain discrepancies, and occasional augmentation in the brass is required, the orchestra is adequate for successful presentation of the important compositions.

The season's symphonies included Tschaikowsky's Sixth, Mendelssohn's Italian, Mozart's Jupiter, and Schumann's Fourth. One American program was given featuring Henry Hadley's Harod Overture, the burlesque "Flivver Ten Million," of Converse, Homer Grunn's Zuni Indian Suite, and MacDowell's Concerto No. 2 in D Minor played with the orchestra, by Clarence Burg of Fort Smith, Ark. Many other impressive numbers were given. The concluding event of the season was the presentation of Aida in English, with the

Festival Opera Company of Chicago supplying the leading roles, sung before a packed auditorium for which all cheaper seats at $1 and $2 had been sold out days before the box office sales opened.

Despite the customary annual financial deficit, the Oklahoma City Symphony Orchestra is considered "good business" by the Chamber of Commerce and business interests which were at first not entirely "sold" to the dollar and cents value of such an organization. When the eastern manufacturer has been induced to recognize the commercial advantages of the city but still wonders if his wife and children are going to find it terribly "Wild West," the symphony orchestra tilts the balance on the right side. It has become a symbol connoting a modern, progressive city, proud of its schools, its parks, its churches, its growing collection of fine paintings and its little theater.

MRS. FRANK BUTTRAM.



MEDINA, N. Y., HIGH SCHOOL BAND

Band Music is Popular in Villages of Western New York

MIDDLEPORT, N. Y.—Bands and band concerts are holding the center of interest this season at Medina, Middleport, Lockport, Albion, and Newfane.

The Medina High School Band has made so successful a name for itself during the past year under direction of Frederick Smith and Carl Hulshoff, that the Board of Village Trustees of Medina has voted $500 for six band concerts by the boys to be held on Saturday evenings in the village park. The Board of Trustees of Middleport has also voted $500, which has been supplemented by a $500 subscription from Middleport merchants to ensure band concerts in this village during the summer months. The Middleport Band is under direction of Charles Hammond, and is composed of experienced musicians from the high school orchestra and citizens.

The Albion High School Band and the Newfane High School Orchestra will give concerts in their respective towns throughout the summer, and will provide the incidental music for other events.

In Lockport, the City Council has made an appropriation of $1,000 to help defray the cost of uniforms and help in sending the Band to the National Band Contest in Joliet, Ill., this spring. In return for this municipal assistance, the Band has agreed to give a series of eight park concerts and one concert at a municipal picnic.

The Albion High School Band is sponsored by the Rotary Club, and the Newfane band by the village at large.

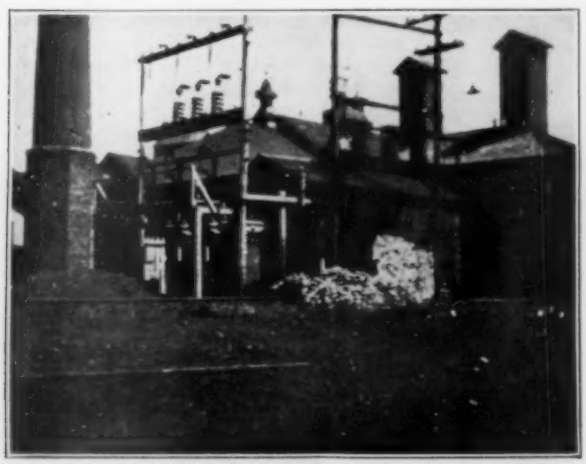
RUSSELL J. WALDO.

High-Line Power Supplemented by Emergency Gasoline Unit

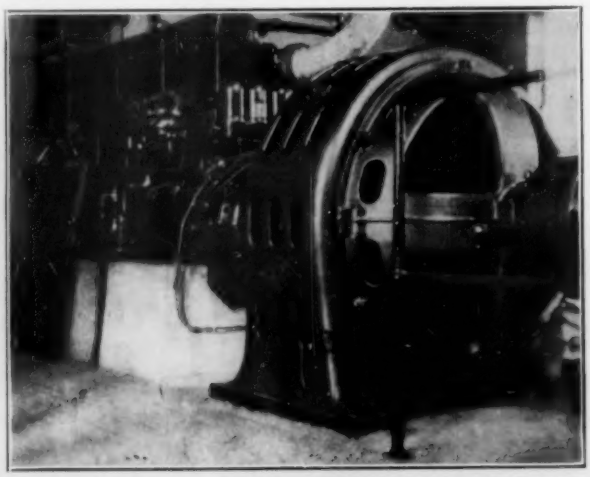
WASECA, MINN.—The possibility of inconvenience from interruptions of power supply have been minimized for the Waseca municipal water and light plant by the installation this year of a 425-hp. gasoline engine driving a 250-kva. generator.

Since 1915 or 1916 this city has been served at wholesale from a 23,000-volt line of the Northern States Power Co., Faribault Division. While we have two lines into the city, they both originate from the same 66,000-23,000-volt substation at Waterville about thirteen miles distant from here. Service was more or less frequently interrupted until about two years ago, when a new high line was built and an additional transformer installed at the substation for emergencies. Since that time our service has been very good. However, the fact that one of our two boilers needed all new tubes, and the general decrepitude and inadequacy of this supposedly emergency equipment as a whole, together with the expense of trying to maintain it in operable condition, had made us consider for some time the installation of some other means of meeting emergencies for water, etc.

Then the underwriters advised us we must get more water in storage than the capacity of our 90,000-gallon tank as long as our daily needs amounted to something like 200,000 to 250,000 gallons. The cost of diesel equipment and extra tank capacity both appeared too high, considering the amount of use for them, hence the decision to install the gasoline engine and generator. Our water-supply is all from deep



BUILDINGS OF WATER AND LIGHT BOARD, WASECA, MINN., WITH POWER COMPANY'S OUTDOOR SUBSTATION IN FOREGROUND



425-HP. STERLING GASOLINE ENGINE, DRIVING 250-KVA. GENERATOR, RECENTLY INSTALLED BY WATER AND LIGHT BOARD, WASECA

wells, so the attachment of auxiliary power to the five motor-driven pumps of different types was a problem and would probably have resulted in higher installation cost than the equipment we did install. Now we can run any or all of our pumps in case of high-line failure, and under normal conditions we could carry the power load if we did not have to run the pumps for a bad fire.

The work done consisted of removing an old 125-hp. steam engine and foundation and installing the new Sterling Viking II, 425-hp., 6-cylinder, 1,200-r.p.m., direct-connected to an Electric Machinery Co. 250-kva., 2,300-volt, 60-cycle generator with bracket type exciter, together with a 1,000-gallon underground gasoline tank, a generator panel with Thompson edgewise a.c. ammeter and jack, a.c. voltmeter and jack, frequency indicator, d.c. ammeter and voltmeter and polyphase wattmeter. Also mounted on this panel is a watt-hour meter, rheostats and field discharge switch. Immediately above the panel is a set of disconnects, and to the right an F.K.20 oil circuit breaker. A No. 2 three-conductor, lead-covered cable in metallic conduit connects the set with a double-throw switch on our distributing switchboard in a small brick building detached about 25 feet from the main building. The outfit installed ready to operate involved an expenditure very close to $13,000. We are, at the present time, installing a reconditioned generator voltage regulator, Type T.A., Form A 2, which we bought of the Commonwealth Electric Co. of St. Paul, Minn., which had the contract for the engine set.

The outdoor view herewith shows our high-line service with the Northern States transformers in the cage. The small brick building is our own substation, housing our switchboard, plant transformers, series street-lighting regulators and voltage regulators. The transformers up on the poles belong to an independent company running rural lines out of here and buying current of the Northern States.

We have a Water and Light Board consisting of three members: E. H. Smith, President; E. O. Herter, Secretary, and John Hecht. H. E. Isker is Manager.

With gasoline at 10 cents per gallon, we are making what current we need for short periods at a cost for fuel and oil of a trifle over 2½ cents per kwh. We like the engine very much and think we could not have done better considering our conditions.

H. U. COOPER,
Superintendent, Water and Light Board.

Town Memorial Building Serves Many Civic Purposes

FRAMINGHAM, MASS.—With the dedication in June of the bronze plaques in the memorial rotunda, containing the names of 2,200 men and women of Framingham who served in the various wars of the nation, the town's memorial building attained its full purpose. The initial dedication of the building had been held earlier in the year.

This building, standing in one of the most prominent corners in the town, and costing nearly $750,000, houses the various town officials; the town library; a large

MEMORIAL TOWN HALL OF FRAMINGHAM, MASS., COMBINING TOWN OFFICES, LIBRARY, AUDITORIUM, DINING-ROOM, AND VETERANS' HEADQUARTERS

fireproof vault for the town records; quarters for the veterans of the several wars; a large auditorium, seating approximately 2,500, with chairs of the removable type so that dances and entertainments may be enjoyed there; a dining-room, seating 1,000, in the basement, with splendid kitchen facilities; besides the beautiful lobby or rotunda. Numerous theatrical performances and social affairs have already been held in the building, which is one of the outstanding structures of its type in New England.

Framingham, with a population of over 21,000, is under the town form of government, and the new auditorium has the distinction of having accommodated the largest town meeting in the United States, last March, with 3,000 in attendance for the five nights it was in session.

A movement for a Framingham memorial has been under way since the Armistice, and the project of a memorial-municipal building was put forward at the first town meeting thereafter, in March, 1919. The site for the building was purchased the following year, and after a number of difficulties were overcome, actual construction was begun in 1926. Framingham is thus provided with a beautiful and unique structure which constitutes an impressive and adequate memorial to her veterans, and which will continue to serve her citizens in many ways of civic importance.

CARL DODDS,
President, Framingham Chamber of Commerce.

Electric Siren Aids Volunteer Fire Company

EAST GREENWICH, R. I.—In municipalities having volunteer fire departments the problem of getting the men to the fire on time takes on serious proportions. Failure to hear or recognize the alarm, and the resulting failure to get to the fire before it has gained headway, may result in widespread destruction.

In realization of this, East Greenwich has adopted the electric siren to sound the alarm. Its weird, penetrating screech cuts through all other noises and is recognized instantly by the men, and is never confused with bells, gongs or whistles that may be sounding at the same time. It has a sound-radius of several miles; and it gets the men to the fire on time.

Of the 1, 3, and 5-hp. types available from the manufacturer, the Federal Electric Co. of Chicago, the last mentioned was chosen as giving the greatest calling radius. It makes possible the sounding of code signals, as does the 3-hp. type also.

The siren is mounted on the roof of the fire-station, being supported about 20 feet above the building in a light steel framework. It has two horns facing in opposite directions. With this mounting the sound is distributed in all horizontal directions without the loss due to reflection from the roof that a lower mounting might cause.

The siren is weatherproof and foolproof. It was easily installed on the support, and requires only an occasional oiling of the bearings to keep it in condition.

FAY R. HUNT,
Editor, Rhode Island Pendulum.

ELECTRIC SIREN MOUNTED ON HEADQUARTERS OF VOLUNTEER FIRE DEPARTMENT, EAST GREENWICH, R. I.

Group of Cities Cooperates in Fire Fighting

CHARLOTTE, N. C.—Ten cities, all within a radius of 50 miles from Charlotte, have joined in a cooperative fire protection program which gives each a metropolitan fire-fighting force that no one place would be able to maintain.

Under the system just inaugurated, each city will be able to call in such equipment as may be needed in case of a fire that threatens to pass beyond control of the local force and equipment. Towns close to Charlotte have recently suffered such fires, notable among which is the fire that destroyed the Central Hotel at Shelby, N. C., on February 23, with a loss of three lives.

Extra equipment is being purchased so that the fire-fighting apparatus of all towns will be standardized and all engine pumpers and hose can be connected with any hydrant in the system.

As there are paved roads leading from one city to another within the 50-mile radius, a call for aid will bring equipment and men in less than one hour.

The nine cities other than Charlotte, with their approximate location with respect to the latter city, and the number and capacity of pumpers, available for first call for aid, are as follows:

	Gallons
Salisbury, 44 miles north, 1	750
Statesville, 44 miles north, 1	750
Mooresville, 27 miles north, 1	750
Concord, 24 miles north, 1	1,000
Lincolnton, 34 miles west, 1	750
Gastonia, 24 miles west, 1	750
Rock Hill, 24 miles south, 1	750
Chester, 44 miles south, 1	750
Monroe, 24 miles east, 1	750

Rock Hill and Chester are in South Carolina; the other cities are all in North Carolina. The above equipment in addition to Charlotte's 6 pumping engines gives us a fire-fighting strength of 15 pumpers, with a total of 45 pump streams.

W. H. PALMER,
Chief, Fire Department.

"U. S. A." Furthers Municipal Affairs in Florida City

SEBRING, FLA.—A novel organization has been formed in the city of Sebring, designed to promote civic welfare. This may not be a new idea in other localities, but it is distinctly a departure from civic organizations in this state.

The City Council, composed of five members, found that it had quite a few problems on its hands, which could not possibly be settled to the satisfaction of everyone in town. H. O. Sebring, the President of the Council, conceived the idea of an organization of representative citizens to meet with the Council and to discuss the problems and make recommendations to the governing body. In addition to the elected members of Council, the organization is composed of two members from each of the following organizations: Lions Club, Rotary Club, Womans Club, Fire Department, American Legion, Elks Lodge, W. C. T. U., Ministerial Association, Chamber of Commerce, American Legion Auxiliary, and Postal Clerks. The result is known as the United Sebring Association. There are no dues, and delegates are elected to represent their organizations, by the various clubs.

Decided benefits have been the result. The problems of the city administration are discussed, and those of the citizens are brought to the attention of the Council through their representatives. Practically every citizen and taxpayer is reached through the medium of these representatives, and the benefits or objections to proposed measures are discussed and explained. Better understanding of civic problems and a decided increase in attendance at Council meetings have been noticed in the few months that the U. S. A. has been functioning, and there is less "street corner politics" than in the past.

A. C. ALTVATER,
Fire Chief.

Sale of Lots Reimburses City for School Site

COHOES, N. Y.—In the development of this city, both in population and in home building, some of the old school sites, which were planned both for a less congested condition in the city, and under less generous standards of the amount of play space to be provided around the school buildings, have become inadequate, and there has been a demand for larger areas to be devoted to school purposes. Last year the city considered the proposition of acquiring another school site. A desirable location was found to be in some undeveloped territory owned by a real estate company, consisting of some thirteen acres. A plot of four acres was necessary and was offered for $5,000. The idea was suggested and adopted of purchasing the entire plot, which was offered for $15,000, setting aside five acres for the school, and subdividing and selling the remaining eight acres as city lots. As this plan was worked out, the Real Estate Board was consulted, and it was arranged that the sale of lots should be conducted by the Board at the standard real estate commission. Inasmuch as the city is not empowered to sell land merely by the delivery of a deed to a purchaser with whom negotiations have been carried on, as in an ordinary private sale, but is required to sell at auction, the latter procedure was adhered to by the Real Estate Board. But through the general cooperation of the Board and the public, this amounted chiefly to a necessary formality, the transfers otherwise taking place at established prices, more or less like ordinary transactions. The price paid for the thirteen-acre plot was $15,000. The eight-acre area was divided into fifty-eight building lots, and these are being sold for $750 each. At an average rate of $500 per lot the eight acres will bring a gross return of $29,000, so that the city not only will be recompensed for the initial expenditure, thus, in effect, providing a school site free, but will have made a gross profit of some $14,000, less commissions and other expenditures.

A further advantage is the fact that the city does its own subdividing in this instance, thus eliminating any difficulties about street plans in conforming with the city's wishes.

The feasibility of the plan that we have carried out for cities in general is, of course, a matter of circumstances, but we feel that a unique opportunity to benefit the community at large was seized upon in this instance, with the general cooperation of the Real Estate Board and the public.

To date we have sold eight lots at $750 per lot. Five houses have been built at an average cost of $6,000 each.

Note the difference. Instead of the city's having a $5,000 liability, as would have resulted from the original proposition, it expects a gross profit of some $14,000 and has five homes with prospects of many more on the assessment roll, and five acres of ground for the school site free.

IVER CARLSON,
Commissioner of Public Works.

Small City Achieves Great Musical Celebration

ORLANDO, FLA.—Orlando broke all southern states' records for participation in musical activities during the last National Music Week. Nearly 25,000 out of a total population of 35,000 attended musical events in which over 500 musicians participated.

Every civic organization luncheon meeting had special musical programs, and every social organization that met during the week devoted the meeting entirely to music. The larger stores held community songs for employees each morning and concerts for customers in the afternoons. Music stores remained open evenings to entertain crowds with music. Each school had its special program, a number of which included operettas, and there was a big inter-school program one evening. Negro quartets which serenaded in each district of the city were one of the striking innovations of the week and proved popular, as did the program of spirituals presented in Eola Park. And in order that every individual in the city should enjoy music week, hospitals, jails and other institutions were visited by bands of musicians.

Dr. Clarence Nice, former director of the LaScala Grand Opera Company, was director of a magnificent three-day festival held in the new municipal auditorium during the first of the week. This included a sacred concert in which a chorus of 200 voices, a 50-piece symphony orchestra, and a number of nationally and internationally known soloists participated; an "Artists Night"; and a concert performance of "Aida." Following this, band music was featured, bands from cities throughout central Florida joining in the celebration. A massed band of nearly 100 pieces gave the closing program, which for the second time during the week attracted a capacity audience of nearly 4,000 to the auditorium.

The celebration was sponsored by the Orlando Recreation Department, with Mayor L. M. Autrey acting as honorary chairman and the undersigned as executive chairman, with Miss Ruth Ogren as general chairman.

THOMAS W. LANTZ,
Department of Public Recreation.

The Modern City and Its Civic Commercial Organizations

By EUGENE VAN CLEEF
OHIO STATE UNIVERSITY

A CHAMBER of Commerce in a certain aggressive southern city is said to have appropriated $100,000 annually in recent years to advertise the merits of its trade area to manufacturers, wholesalers and retailers located in other regions, hoping to entice them from their current location and to attract with them a marked addition to its population. Another trade center has set aside upwards of $500,000 to be spent over a period of several years in an effort to accomplish a purpose similar to that of the southern gateway. Other centers are spending proportionately large sums in this race for industrial supremacy and increased size. It is important to determine, if possible, the worth of such expenditures.

A study of the literature issued by chambers of commerce, industrial bureaus and other civic-commercial organizations is highly illuminating from the viewpoint of claims made by them. Indeed, if one believed all that is recorded in the almost unending issuance of delightfully written and attractively illustrated folders and booklets, one would find himself in a quandary as to which "paradise" to select for a place of permanent residence. No person, in this day of the recognized validity of the principle of advertising, would for a moment question the propriety of cities' engaging in the use of the advertisement to make known their assets to the public, but reasonable and legitimate advertising should be expected and even then its value may be challenged.

Slogans

Many cities have adopted the slogan as one form of advertisement. A few slogans are worth noting. One announces to the public that it is the place "Where Enterprise was Invented." Some claim to be "The City of Opportunity" and others "The City of Diversified Industry." The first slogan can hardly make an appeal to the intelligent business man, and the latter two lack distinctive character. "The Short Haul Convention City," and "The Gateway to the South" tell more and have individuality; as do also "Here Quality Dominates" and "Old Elms but New Ideas."

Booklets and the Public Press

In a booklet, pleasing in form, issued by a fair-sized Great Lakes city, the advantages of the trade center are listed in bold type, among which are "Geographical Location," "Climate," and a "Wealth of Contiguous Territory." Following the list is the comment, "Absence of any of these factors works to the detriment of any community." Where is there a community without geographical location and without climate? The writer of this booklet must have been in much the same frame of mind as the Irish washwoman who, when hearing a complaint about the weather, responded, "We can be thankful that we have any weather at all."

A southern city recently paid a large sum for space in one of our most prominent magazines to advertise its climate to the general public seeking a vacation land, and to the investing public interested in industrial and other business opportunities. The ocean breezes were emphasized, even to the extent of engaging in a scientific explanation of their presence during the summer season. Yet while they enthuse over a prevailing northeast wind, the Weather Bureau statistics show that for the months of June, July, and August, the wind prevails from the southwest, that is, from the land.

Another trade center of some importance proclaims to the world its "59 hotels" when it has few more than a half-dozen first-class hostelries. What could be more disastrous to a community than such proclamations!

We have much good material. Many cities have learned that a scientific attitude toward an analysis of their own possibilities and a subsequent development based upon these findings, is the only satisfactory method of city building. In fact, an investigation into the growth of cities versus advertising, and versus other influences, raises some doubt as to the value of systematic advertising.

A comparison of the growth of population in cities which advertise intensively as well as extensively, and those which do little or no advertising, reveals the rather striking fact that in most instances the advertisers have grown no more rapidly than the non-advertisers. Not only has this been true, but many of these advertising urban centers have grown at a much slower rate than that for the urban growth of the entire United States. It seems fair to expect advertising cities to keep pace with the average for the country. On the other hand, numerous centers which have enjoyed only such public notice as has come from the launching of particular projects such as park and playground expansion, zoning or planning regulations, erection of notable municipal structures, or publicity arising out of the aggressiveness of private enterprise, have grown by leaps and bounds. These findings are based upon inquiries among a considerable number of cities representing various parts of the country and representing communities of every size.

Specialization in Industries

In contrast with the doubtful effectiveness of civic-commercial organization advertising, is the influence of involuntary advertising, resulting from specialization in industries. Trade centers in which the automobile industry flourishes, centers where oil has been located, and many steel centers, have shown far greater growth than the highly advertised centers whose actual achievements have been relatively slight. It would seem that the most beneficial type of advertising which a city may enjoy is that which comes from the association of its name either with a superlative and widely known article or with a given industry as a unit. Ford and Detroit, National Cash Register and Dayton, Eastman Kodak and Rochester, Pillsbury Flour and Minneapolis—these and other cases illustrate the close association which may arise between a product and a trade center. It is a most effective type of city advertising.

The Advertising of Cities

is the title of this, the second of a series of short articles written by Professor Van Cleef for* THE AMERICAN CITY, *under the general heading of "The Modern City and Its Civic-Commercial Organizations."

The first article in the series, "Cities in Competition," was published last month. Other articles to follow include:

"The World's Greatest Migration"

"The City Plan and City Growth"

"An Influential Chamber of Commerce"

"A City and the World's Markets"

Here is a very real situation over which chambers of commerce, industrial commissions and other associations may well ponder. Might it not be better in some instances if organization funds were spent to assist local business to become better known nationally and internationally, so as thereby to associate the product and the city in the minds of the public, than to shout from the housetops when there is little to shout about?

The Chamber of Commerce of an interior city of moderate size has recently made an exhaustive survey of its facilities, the results of which are printed in several volumes. Upon the basis of this careful study, a campaign of advertising has been launched aiming to accomplish just the sort of end suggested here. Instead of presenting vague but enthusiastic generalities, they are backing up not only their industries but their business leaders, giving the latter personal publicity. The results will be worth observing closely.

Rapid Transit Without Comprehensive Planning Creates More Congestion

NEW YORK and the area immediately surrounding it are victims of a "traffic paradox" in that as rapid transit facilities are added to, the riding habit increases and the rush hours become even more congested. This is shown in an exhaustive report on Transit and Transportation, one of the series now being published by the Regional Plan of New York and Its Environs. Discussing the report, George McAneny, former Chairman of the Transit Commission, stated that it shows "the uselessness of planning and constructing new facilities for transit and traffic without at the same time controlling building densities and distribution of population and industries. All planning of the daily transportation of human beings and of freight in this region must be coordinated with planning of the uses and densities of buildings on the land; until this is done, everything we do to lessen strangling of transportation facilities adds to the impetus with which the next strangle arrives.

"We cannot solve the problem of congestion by building more transit lines merely to feed existing congested conditions; we can only solve it by using transit as a means to disperse industry and population over wider areas. Such dispersal should not lessen the degree of concentration necessary for business and industrial efficiency, but we have gone far beyond this degree in parts of New York. As we do so, we destroy the value of concentration and lessen, rather than increase, accessibility.

"It is curious that owners of property object to restrictions on heights and densities of buildings; and yet continue to face greater losses than would be caused by these restrictions, as a result of taxation to meet costs of transit, traveling expenses for the workers, destruction of accessibility by clogged streets, one-way traffic restrictions, and limitation of parking. Land gains its chief value from accessibility—not from permission to crowd it with buildings."

The report presents the findings and conclusions of a large corps of experts in the fields of economic research, engineering and community planning, who have for six years conducted an intensive study of the situation in New York City and its 400 neighboring cities and villages, preliminary to the drafting of a plan for the future development of this city, and the suburbs linked with it economically.

The report shows that the subways have never been able to keep pace with the demand for their use; that the building of new subways to feed the present system of city growth merely creates new congested districts, increases the riding habits of the public and makes for more crowding of all rapid transit facilities. Present conditions are termed "indecent, distressing and degrading." Instead of trying to bring more millions of workers to and from Manhattan daily, the Regional Plan says, we should bring the place of work closer to the home of the worker.

The carrying-out of a billion-dollar subway construction program in the next fifteen years will not solve the problem of subway congestion, unless there is accomplished at the same time a spreading-out of the industry and commerce now largely concentrated in lower Manhattan.

In its conclusions regarding the rapid transit section of the report, the Regional Plan says:

"The growth of the Port of New York, and the industrial business and residential communities within and around it which now form one metropolitan region, has been enormous and is still continuing. It has brought about untold wealth and prosperity, but has also led to congestion in places of business and recreation; delays in movement and in the transaction of business; and increased costs of handling freight and passengers.

"The community under consideration had, in 1927, over 10,000,000 residents, and an adequate plan for future growth should consider the possibility of its population being doubled. . . . .

"All means of transportation should be planned to furnish direct routes not only to the older business centers but to the new ones which either are arising or may be expected to develop. Short hauls between residences and places of work will do much to relieve congestion. Traffic, transit and transportation routes may in some cases follow common lines, in other cases they can more advantageously follow independent routes. This can only be determined upon by the coordination of regional studies for all three systems of communication."

Open or Closed, Right or Left Hand?—A Problem

By EWARD J. COONEY

MANAGER, PORT CHESTER WATER-WORKS, NEW YORK

SOMEWHERE in America there is a man, presumably connected with some water company or water engineering firm, who, when he reads this article, will say to himself, "I have an idea that will cover that very point."

There is a constant need in all water systems for some kind of device that will show at a glance whether a valve underneath a street or sidewalk is open or closed, and whether or not it is a right-hand or a left-hand valve.

This article is written for the specific purpose of making men think; and by thinking to design something new in water-works practice. This "something new" should be worth considerable to the designer, as there is no doubt that some valve manufacturer will be only too pleased to manufacture an acceptable device on a royalty basis.

Perhaps it might be well to consider some devices that have been used in the past, or that are being used now in an endeavor to fill this need.

One company turns out what is known as a double gate-valve, a bevel gearing indicator. This indicator can be attached with spur gearing as well as bevel gearing.

Then there is the Telltale valve post and the Underwriter indicator post. The Telltale is used in connection with fire service in mills and factories, and the indicator post is approved by the Factory Mutual Fire Insurance Co. and built in accordance with their requirements.

In many places the outside screw and yoke valve is used—not an indicator. Years ago the insurance people insisted this kind of valve should be used underground as well as above.

There are indicators on valves with slide stem in connection with a floorstand. There may be others that have been used, but the writer is not familiar with them.

What water engineer will rise to the occasion? What inventive genius will give the water world the advantage of his clear thinking? Who will come forward with a "tell-tale" mechanism of some sort that will meet the needs as specified above, conforming to the exacting requirements that have to be met in water-works practice?

The man who can design something new and simple will place his name in the Water-Works Hall of Fame.

THE MONTH IN PUBLIC HEALTH

Conducted by JAMES A. TOBEY, DR. P. H.

Too Much Rabies

THE disease known as rabies, popularly called hydrophobia, has become a serious menace in the United States. From numerous sources there have recently come admonitions that rabies is unduly prevalent in many of our states and cities. Thus, in Detroit, 432 persons have had the Pasteur treatment for rabies during the first five months of 1928, as against 123 for the whole of 1927. In Chicago there were 19 deaths from rabies in the ten months to June, 1928, though none had been reported in the previous eight years.

Rabies is a disease of dogs and other animals, which is communicable to man, usually by the bite of the rabid animal. According to Dr. C. C. Pierce of the United States Public Health Service, who issued a warning in June, rabies is spread chiefly by stray dogs who have no owners and no homes, or by dogs who are allowed to stray by negligent owners. He advises all persons to be wary about petting strange dogs.

Children are unfortunately the chief victims of rabies, for, as pointed out in a recent issue of the *Statistical Bulletin* of the Metropolitan Life Insurance Company, six deaths out of every ten from rabies during the past seven years in the Registration Area have occurred in children, more especially boys, under fifteen years of age. This means that from the standpoint of mortality, rabies is almost as much a disease of childhood as is scarlet fever.

The Prevention of Rabies

The control of rabies as a public health measure depends, of course, upon the control of all dogs in a community. In some parts of the country, the control of other animals, such as coyotes and even horses and cattle, may also be important. The enforcement by health and police officials of strict muzzling ordinances and the impounding and destruction of all stray dogs, are necessary measures. Dr. Thurman B. Rice and Dr. Normal Beatty inform us in the *American Journal of Public Health* for April, 1928, that by means of strict muzzling ordinances England was rid of rabies by 1902 and remained free of the disease until 1918. In that year it was reintroduced, and spread until 1922, when it was again brought under control. There have been no subsequent cases.

A method of vaccinating dogs against rabies has been developed, but this gives a relative rather than absolute protection. In Detroit, for instance, it was found that rabies has been about ten times as prevalent in unvaccinated as in vaccinated animals. In that city, about 16,000 of the 100,000 dogs had been vaccinated up to June of this year.

Every dog which bites a person should be immediately apprehended and kept under observation by the health authorities for at least ten days. If the dog is rabid, the symptoms will become manifest within this period. If a supposedly mad dog has been killed by some excited person, the head should be sent, carefully packed, to a competent diagnostic laboratory.

An individual bitten by any dog should, as advised in the *Weekly Bulletin* of the California Department of Public Health, immediately seek medical aid so that the wound may be properly cauterized. If, after observation or by laboratory examination, the dog turns out to be rabid, it is necessary to take the Pasteur treatment. Rabies is a fatal disease if allowed to go untreated, and every precaution should be observed to prevent and control this malady.

Another Animal Disease

Undulant fever, or contagious abortion in cattle, is another disease which has lately been getting attention from health officials. This cattle malady, caused by the Bact. abortus, gives rise to a disease in man which resembles typhoid fever. It is spread by raw milk from infected cows and may be prevented by proper pasteurization of the milk supply, which is one more reason to be added to the many in support of the pasteurization of all raw milk other than certified.

During the past two years there have been reported in the United States some 50 human cases of undulant fever in which the Bact. abortus has been incriminated, according to James G. McAlpine, Ph.D., and Friend Lee Mickle, M.S., writing in the *American Journal of Public Health* for May, 1928 (page 639). The diagnosis of undulant fever is a task for the laboratory, and the *Journal* of the American Medical Association advises editorially in its issue of June 23, 1928, that all blood sent to state and municipal laboratories for the Widal test to detect typhoid, also be examined to determine whether the patient has undulant fever or Malta fever. Scientists have demonstrated a close relationship between the Bact. abortus and the Bact. melitensis, which causes Malta fever in goats.

More Efficient Health Administration

A proposal that nuisance control be transferred from health to police departments was made by Dr. A. S. Fell, Health Officer of Trenton, N. J., in his presidential address before the New Jersey State Health Officers Association, which appears in *Public Health News* of that state for June, 1928. Dr. Fell points out that most of the alleged nuisances have little, if any, real effect on public health and that they can be abated more effectively upon order from a policeman in uniform than by the suggestion of a sanitary inspector in civilian dress.

The advantages of civil service for health department employees and the desirability of pensions are also discussed by Dr. Fell in his address. He believes that civil service promotes greater tenure of office and thus improves morale. This system will, however, cease to present some incongruities when people employed in health departments are required to have preliminary training in the work they will be called upon to perform. According to a recent study made by the American Public Health Association, only 24 health officers of 156 cities over 30,000 population were under civil service.

Facts About City Health Officers

A Health Officers' News Letter is issued monthly by the Committee on Administrative Practice of the American Public Health Association of New York and is sent to health and city officials who desire it. In the edition of May 28, 1928, are some interesting data on the appointment, tenure of office and compensation of health officers as compared to those of fire chiefs, school superintendents, and city engineers. The information was collected from 156 of the 250 cities of 30,000 or more.

The health officers of 111 cities received an average compensation of $4,420 a year, which is about the same as the city engineers, who got $4,710. Health officers are better paid than fire chiefs, whose average was $3,610, but they receive much less than school superintendents, who received an average of $7,390 or about $3,000 a year more. Sanitarians claim, with much justification, that health is as important as education, but these salary figures seem to indicate that most municipalities do not realize that fact.

In the 156 cities, 40 health officers are appointed by the mayor, 20 by a city manager, 31 by the board of health, 15 by a commissioner of public health and safety, 24 by the council, and 11 by the city commission. Although fire chiefs, city engineers, and school superintendents are practically all on full-time, 44 of the 156 health officers are on part-time service. About half of the health officers are appointed for a definite term of office, ranging from one to five years, the terms of the remainder being indefinite or at the pleasure of the appointing body.

Above: Coldwell Model "L" Motor Lawn Mower and Roller with gang units attached. Thus equipped, it mows a 60-inch swath.

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Sunburn

It may seem a little late in the season for remarks on sunburn, but many persons have probably not yet acquired theirs and, besides, it is never too late for comments on matters relating to hygiene. Sunburn is very much of a public health topic at this time of year.

Sunlight has a definite health value, and a coat of tan is a badge of salubrity which deserves respect. Like many other good things, however, sunlight must be used in moderation. A severe sunburn may not only be most uncomfortable, but if too severe it may, like any other extensive burn, result in high fever, delirium, serous meningitis, and even death in extreme cases. These dangers were pointed out by Dr. James S. Walton, of the New York State Department of Health, in a radio talk released for publication on June 30, 1928.

To develop a tan, the individual should begin gradually, with not more than five or ten minutes daily exposure at first. The time may be increased every day until at the end of a week a light tan has been acquired and the subsequent danger of severe burning is slight. It is flirting with trouble for a person who has put on a bathing suit for the first time in the season to spend a day roasting and blistering on a beach under a hot sun. When this foolhardy stunt occurs, the services of a physician will be required.

As Dr. Walton well says, "Enjoy your vacations; develop any tan from light yellow to deep bronze; but, if you value your comfort or your health, avoid sunburn."

How Much Venereal Disease?

In the past, estimates of the amount of venereal disease in this country have been somewhat haphazard, as these diseases are frequently not reported or only indifferently reported. In order to get an idea of the prevalence of venereal disease, the United States Public Health Service recently made a survey in 14 communities, including 9 cities and 5 counties in West Virginia, Kentucky, Illinois, and Arkansas. The report of this investigation, by Dr. Thomas Parran, Jr., and Messrs. W. C. Smith and S. D. Collins, has been issued as Reprint No. 8 from *Venereal Disease Information* of the United States Public Health Service, Washington, D. C.

Out of a population of 619,126 in the 14 communities, there were reported as under treatment or observation a total of 7,184 cases of venereal disease, or a rate of 11.6 per 1,000 population. Seventy-five per cent of these cases were under the care of private practitioners, the average number of cases per physician being 6.37. There was evidence that the prevalence was higher in the cities than in the counties, and the diseases were more prevalent in males than in females.

Tuberculosis Legislation

The reduction of tuberculosis in our cities and states depends upon many factors, medical, sanitary, sociological, economic, educational, and legal. Much has been written on these various phases of the problem, but there is less on the law as applied to tuberculosis work than there is on the other factors mentioned. In order, therefore, to make available to health officials, legislators, attorneys, and others an outline and analysis of a legislative program against tuberculosis, the National Tuberculosis Association has recently published a Manual of Tuberculosis Legislation.

This 86-page booklet presents a general consideration of tuberculosis and the law, with an outline of the historical facts on tuberculosis legislation, notes on law making, and a complete discussion of public health legislation necessary to deal with tuberculosis in a state. There is also an index to all existing state laws on tuberculosis. Copies of this manual may be obtained direct from the National Tuberculosis Association, 370 Seventh Avenue, New York City.

A Pooling of World Ideas on Making Cities Livable

(*Continued from page* 82)

the general timidity of municipal officials in carrying out improvement schemes in built-up areas, and urged the advancement by city planners of noble ideals which, when carried into practice, are likely to pay esthetically and financially as well.

The principal general conclusions emerging from the papers and discussions as to remedies for the chief difficulties encountered in carrying out town and regional plans were summarized by Mr. Pepler at the final session as follows:

1. No land should be excluded from town or regional planning, and appropriate authorities should be required to prepare schemes for all land in every country.

2. Regional planning should be encouraged, as far as possible, on a voluntary basis, and all authorities concerned should be given the necessary powers to enable them to cooperate fully. Also, if necessary, the highest authority in the country should be empowered to intervene to secure that comprehensive schemes are not defeated through lack of cooperation between the authorities concerned, and shall in default of agreement, finally allocate the division of the cost among the authorities and parties interested.

3. In any country where town planning has become a common practice, it should not be necessary for the authority to inform owners individually that a scheme is being prepared.

4. When a scheme has been prepared and approved, the responsible authority should be given the powers of expropriation necessary to ensure that the objects of the scheme are achieved. When a plan has been prepared and has been approved, the competent authority should be empowered to expropriate any land, including building land, when this is judged indispensable by the municipal authorities in order that the normal growth of the town may be assured.

5. When a scheme generally enhances the value of property within its scope, its cost, to the extent of that enhancement, should be borne by the property benefited; and to avoid hardships to individual owners and consequently the necessity for compensating them, the authority should be empowered to pool individual ownerships and redistribute in holdings conforming to the scheme.

6. No property of public or semi-public bodies should be excluded from a scheme, and all public services, for instance, roads and railways, within the locality should come within its purview. The Department of State responsible for town planning should be responsible for safeguarding the paramount interests of the public at large.

An important American contribution to this discussion was the paper by Alfred Bettman, of Cincinnati, advance abstracts from which were published in the July number of THE AMERICAN CITY (pages 99-100).

The Business Session

AT the business session of the Congress, Raymond Unwin, of London, was elected President of the International Federation for Housing and Town Planning. Announcement was made of the decision of the Council of the Federation to hold the 1929 Congress in Rome and that of 1930 in Berlin.

Resolutions on the notable public service of the Federation's former President, the late Sir Ebenezer Howard, were adopted, and tentative plans for a suitable memorial, including a fund to make studies of congestion of population and the propagation of the garden city idea, were outlined.

Complete Reports of International Housing and Town Planning Congress Available

READERS of THE AMERICAN CITY who find material in the foregoing abstracts of interest are urged to secure the complete papers and reports of the Congress proceedings, which will soon be available in three paper-covered volumes. These can be secured at a cost of £1, which covers also membership for one year in the International Federation for Housing and Town Planning, on application to the headquarters of the Federation, 25 Bedford Row, London W.C. 1, England.

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Municipal Government Experts Featured on Institute Programs

UNIVERSITY OF VIRGINIA.—A. R. Hatton, Professor of Political Science at Northwestern University, former member of the City Council of Cleveland, and Thomas H. Reed, Professor of Municipal Government at the University of Michigan and Director of Research of the Pennsylvania Commission to Study Municipal Consolidation in Counties of the Second Class,—both well-known to municipal officials and other readers of THE AMERICAN CITY,—will take active part in the second annual Institute of Public Affairs, to be held at the University of Virginia August 5 to 18.

The Institute is planned, according to preliminary announcements by Dean Charles Gilmore Maphis, Director, "for discussion in a broad and competent fashion by men charged with the task of public administration and by those who are engaged in public affairs" of current public problems within the United States, including problems of national, state, and municipal government. Speakers, students, and visitors will be representative of the country as a whole.

The heated, extemporaneous debate at the Institute last summer participated in by William G. McAdoo, Governor Ritchie of Maryland, and Senator Carter Glass of Virginia, on prohibition and the Eighteenth Amendment, created a demand for similar discussions on other subjects this year, and has led to plans for a series of forums in addition to the morning round tables and evening addresses.

Round tables as planned, in addition to that on Municipal Management, which will be led by Professor Reed, and that on Political Parties, by Professor Hatton, include the following:

Women in Public Affairs, Mrs. Aurelia Henry Reinhardt, President of Mills College, leader; The Press in Public Affairs, Victor Rosewater, national publicist, leader; Arbitration of Commercial Disputes, Wesley A. Sturges, Yale University Law School, leader; The Agricultural Problem, John D. Black, Professor Agricultural Economics, Harvard University, leader; Our Latin-American Relations, John H. Latane, Professor American History, Johns Hopkins University, leader; The Economic and Industrial Development of the South, Bradford Knapp, President, Alabama Agricultural and Mechanical College, leader.

UNIVERSITY OF SOUTHERN CALIFORNIA.—Mayors, city managers, commissioners, and other city officials and citizens actively interested in public affairs are expected to attend the Institute of Municipal Administration, University of Southern California, Los Angeles, August 13 to 18, according to announcements of President R. B. von KleinSmid. The Institute will include an intensive six-day course of lectures and round-table discussions on city planning, municipal finance, street traffic control, public health, municipal engineering, social welfare, legal problems of municipalities, recreation, park administration, etc.

Sessions to be held mornings and afternoons will be headed by experts in municipal affairs from cities throughout the country, while nationally known authorities who are to lecture include the following:

William B. Munro, of Harvard University, Vice-President, National Municipal League; John N. Edy, City Manager, Berkeley, Calif., and President, International City Managers' Association; C. M. Spofford, Chairman, Department of Civil Engineering, Massachusetts Institute of Technology; Harland Bartholomew, of St. Louis, President, American City Planning Institute; Miller McClintock, Director, Erskine Bureau of Street Traffic Research at Harvard University; Francis Hiller, of New York City, Field Representative, National Probation Association; Edwin A. Cottrell, Professor of Political Science, Stanford University; Abel Wolman, Chief Engineer, State Department of Health, Baltimore; Ira V. Hiscock, Yale University, Bacteriologist, Connecticut State Department of Health; Otto Schreiber, head of the Institute on Air Law, University of Koenigsberg, Germany.

Institute membership will cover twelve states, and advance registration indicates that hundreds of students will attend the sessions.

Building Codes and Plumbing Codes in American Cities

SEVEN hundred fifty-one cities of over 10,000 population are listed in a Building Code and Plumbing Code Tabulation issued last month in mimeographed form by the Division of Building and Housing of the U. S. Department of Commerce. This list is based almost entirely on answers to a questionnaire sent out during March and April, 1928, to building inspectors, city clerks, and others from whom it was thought authentic information could be obtained.

The points tabulated include the dates of building and plumbing codes now in use; whether or not the plumbing code is printed in the same book with the building code; whether or not the codes are being revised; whether the plumbing code is enforced by the building department, health department, or some other agency; and the number of persons in the building, plumbing and electrical inspection departments.

Of the cities having over 10,000 population, according to the 1920 census, some information was received from all except 41. One hundred eight of the cities reported that they have no building code. Of the remaining 602 cities, it would appear that many have urgent need for revising their building codes to conform with the best recent practice, since 10 of these cities report that their codes were adopted prior to 1900; 41 between 1900 and 1909; 173 between 1910 and 1919; and in only 378 cities has the building code been adopted or revised since January 1, 1920. It is gratifying to learn, however, that 205 cities report that the building code is now being revised. Similarly, plumbing codes now being revised are reported from 139 cities.

A total of 577 cities report on their method of plumbing code enforcement. Of these, 248 entrust the enforcement of the plumbing code to the health department; 171 to the building department; 129 to other departments of the city government; and 29 report that enforcement comes within the jurisdiction of two or more different departments of the municipal government.

A limited number of copies of the complete tabulation are available for those interested in such information, and may be obtained on application to the Division of Building and Housing, Department of Commerce, Washington, D. C.

A Not Unrealizable Utopia—1928 Model

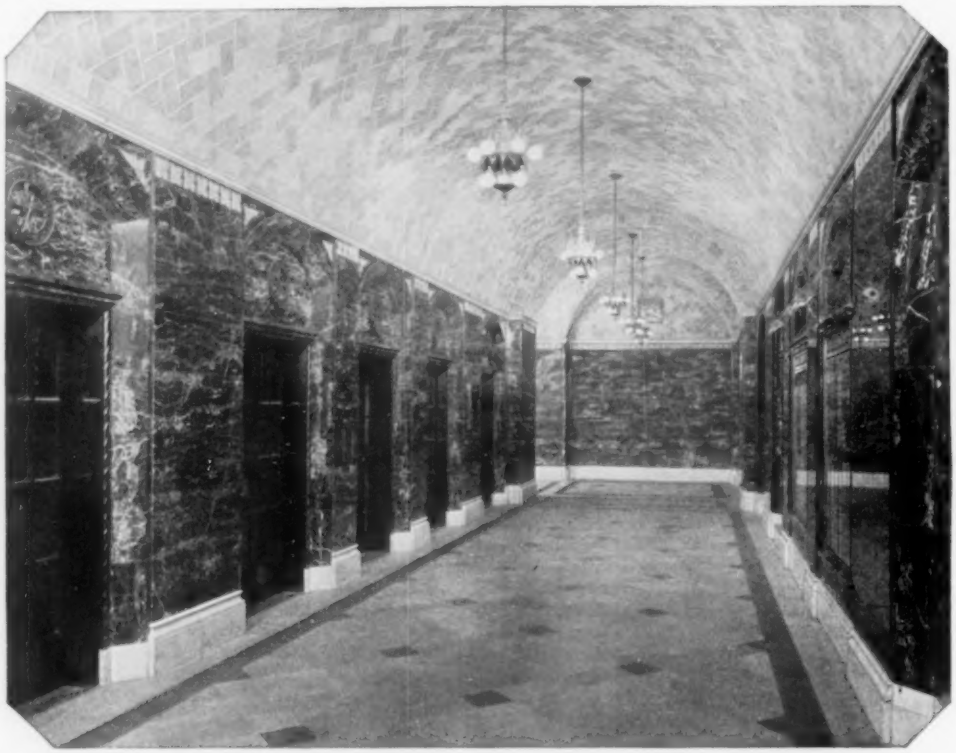
"WHAT kind of a community would I build to increase the count of the hours that live as against the count of the hours that die?"

This is one of the questions upon which Stuart Chase builds up "A Very Private Utopia," in a recent issue of *The Nation*, in which he outlines a major classification of what seems to him to constitute "the good life," as opposed to the negative influence such as "kill the juices of zestful living" and result in a mere existence.

The two following paragraphs are from his outline of his supposititious Utopian community which, as he describes it, is remindful to him of the plains and hills and cedar trees of Attica and Laconia as the Greeks must have looked back upon them. The paragraphs might just as conceivably be, of course, from the notebook of an idealist developer of one of America's new built-to-order towns with its city and regional plan, and its careful forethought for architectural control as well as for what the English call "the amenities":

"I would like to live in a community where beauty abounded; where cities were nobly planned, industrial areas segregated; where great stretches of forest, lake and mountainside were left wild and free and close at hand; where houses and their furnishings were spare and fine and colorful, and there was not a single billboard in a day's march.

"I would like to live in a community that held a genuine sense of uniqueness; where one could take pride in community achievements, match one's art and craftsmanship and sport against a neighbor group; where one could contribute in person to the local theater, the local schools; help to plan a beautiful region and see that plan grow before one's eyes."



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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, *Attorney at Law*

Street Railroads Must Keep Their Rights-of-Way in Reasonable Repair

New Cumberland Borough vs. Valley Railways and Harrisburg & Mechanicsburg Electric Railway Co., 19 Pa. Munic. Rep. 135, decided by the Court of Common Pleas for Cumberland County, Pa., dealt with the right of the borough to require the railway companies to join in the replacement of a macadam street with concrete, as part of a through state highway. The Court decreed that the companies could not be charged with the expense of such replacement, under the ordinances applying to them, but that they shuld be required to aid the construction of concrete crosswalks and to keep their portions of the street in a good state of oil macadam repair. The Court reached the following stated conclusions:

It takes no special contract provision or statute to require the companies to keep in good condition the portions of the street occupied by them. They are, under the common law, bound to keep those portions in a manner that reasonably corresponds with the street paving adopted by the municipality.

Where a contract with the municipality calls for a particular kind of paving by the street railway company, it cannot be compelled to install a new kind at a time when the original paving is in good condition and not in need of repairs, nor can a change in the style of paving be required of the railway company even when repairs are necessary, unless the original style of paving is incongruous with the style of paving adopted by the municipality and practically incompatible therewith. But if the contract calls for paving of the same kind as adopted by the municipality, the company may be compelled to change its style to conform to that adopted by the municipality.

Property Lying Beyond a City's Boundaries May Be Acquired for Proper City Purposes

"We see no good reason," said the Kentucky Court of Appeals in the case of Smith vs. City of Kuttawa, 1 S. W. 2d Series, 982, "why a city may not acquire or own property beyond its corporate limits for legitimate city purposes. The necessities of an adequate and pure source of water-supply, of a remote situation of pesthouses, of large tracts of land for park purposes acquired when land can be acquired in a large tract and before the city has built up to, around, and upon it, of suitable places for incinerators and garbage disposal, of farms for the penal and charitable institutions, of hospitals for tubercular patients and homes for incurables —all dictate the reasonableness of the rule allowing a city to own property for such purposes beyond the corporate limits. Indeed, in a great many instances, a city would be thwarted in a legitimate exercise of its municipal functions if it could not acquire property therefor beyond the corporate limits. Large tracts of land, for park purposes especially, can rarely be obtained within the corporate limits. Of course, this rule has its limitations. The property acquired must be for a city purpose."

It Takes a Contract or Statute to Make a Water Company Liable for Private Fire Loss Resulting from Insufficient Pressure

The owner of property destroyed by fire in Rensselaer, N. Y., because of insufficient water pressure had no cause of action against the water company, held the New York Court of Appeals in the case of H. R. Moch Co. vs. Rensselaer Water Co., 159 N. E. 896. The Court held that there was no breach of contract of which the plaintiff could complain nor common-law or statutory liability on the part of the water company.

AN INDEX TO LEGAL DECISIONS

which were reported by Mr. Street in THE AMERICAN CITY *during the four years* 1924-1927 *inclusive, is a special feature of* THE MUNICIPAL INDEX *for* 1928 (*pages* 110-115).

"No legal duty rests upon a city to supply its inhabitants against fire," observed the Court. "That being so, a member of the public may not maintain an action . . . against one contracting with the city to furnish water at the hydrants, unless an intention appears that the promissor is to be answerable to individual members of the public as well as to the city for any loss ensuing from the failure to fulfill the promise. . . .

"We do not need to determine now what remedy, if any, there might be if the defendant had withheld the water or reduced the pressure with malicious intent to do injury to the plaintiff or another. We also put aside the problem that would arise if there had been reckless and wanton indifference to consequences measured and foreseen. . . . What we are dealing with at this time is a mere negligent omission, unaccompanied by malice or other aggravating elements."

Holders of Village Bonds Could Not Prevent Detachment of Unplatted Farm Lands from the Municipality

A petition by an owner of unplatted farm lands within the limits of the village of Abercrombie, N. D., for the detachment of the same was opposed by the village authorities and by Wells Dickey Company, holder of bonds of the village. The North Dakota Supreme Court held that, under the peculiar circumstances, petitioner was entitled to the detachment of territory prayed for. The Court further overruled a contention on the part of the holder of the bonds, that the detachment would unconstitutionally violate the right to have that land subjected to taxation to pay the bonds. Disposing of that point, the Court said:

"The bonds in question were issued . . . long subsequent to the enactment of the statute providing for the exclusion of territory from incorporated villages. . . . It is true . . . that the Legislature cannot constitutionally pass an act which impairs the obligations of contracts to which a municipal corporation is a party. . . . Nevertheless, the fact that the action of the Legislature is subject to the constitutional restraint cannot avail the appellants in the instant case. In the first place, it does not appear that the appellant, Wells Dickey Co., will in fact be injured by the exclusion of the lands in question, for it is not established that the village will not be able to raise by taxation funds sufficient to met its requirements with respect to the bonds. Of course, we are not here concerned with what may happen in the future with regard to similar petitions for exclusions. In the next place, the village is but the instrumenality of the state; it is wholly a creature of the legislative will. Ordinarily the Legislature may do as it will with any of the municipal organizations for which it has made provision. It can provide for the extension or for the shrinking of their boundaries. . . .

"When the appellant purchased the bonds of the village of Abercrombie, it purchased them knowing the power of the Legislature with respect to viliage organization." (Sitte vs. Paulson, 216 North Western Reporter, 344.)

Town Records Properly Recorded Through Photostatic Process

In the case of the Town of Bennington vs. Booth, 140 Atl. 157, the Vermont Supreme Court decided that the plaintiff was not entitled to compel defendant, its clerk, to discontinue a practice of recording instruments by photostatic process, saying:

"The statute does not require the use of any particular method of recording. G. L. 3951. Any method, not otherwise unlawful, whereby a record is produced which has all the characteristics required by law, may be used. New times have brought new methods, and, with the above limitation, the choice of the process is but the 'choice of the pen'—a detail with which we will not attempt to interfere. . . .

"The case shows that the photostatic

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copies are all legible. That some are more easily read than others has no effect upon their validity. Records made with pen and ink are well known to differ in that respect. They have perpetuity. Not, to be sure, in the absolute sense of the word, for no one can believe that any of our paper records will last forever. But they have that attribute no less than it is possessed by records kept by a town clerk in handwriting or typewriting. In addition to these essentials, . . . they afford as much publicity to what is thus recorded as is given to any records in a town clerk's office.

"Yet, G. L. 3951, provides that the clerk shall 'record at length, in books to be furnished by the town,' and it is said that this has not been done. It is plain that the clerk has recorded at length and that the materials he provided, used, and the town paid for were furnished by the town. If, within the meaning of the statute, the photostatic records are books they lack nothing required by G. L. 3951. That they are books after they are bound is perfectly apparent. . . . The object of this statute, however, was to provide for the making of records; not for the use of some particular kind of book. It would, we think, be placing the emphasis on a comparatively inconsequential matter to hold that these photostatic records are invalid because they are made on sheets which are destined to be bound rather than on sheets which are already bound. While they are accumulating until numerous enough to be bound, the sheets of photostatic records, within the meaning of our statute, constitute the current book of records."

A Building Permit Issued in Excess of Authority Conferred is Void

A building permit issued by an officer charged with that duty, but for a purpose prohibited by law, is void. Such officer is powerless to bind the city by acting in excess of his authority. No property rights will vest under a void permit. Upon a review by the board of adjustment, of the issuance of a building permit by the official charged with that duty, an assignee of the permit, even if such assignment is valid, is not entitled to notice of the hearing unless notice of such assignment has been given to the municipality. (New Jersey Court of Chancery, in Ostrowsky vs. City of Newark, 139 Atl. 911.)

Where the Holder of a Building Permit Issued Under a Valid Ordinance Begins Work or Spends Money Under It, He Acquires Vested Rights

That one who obtains a building permit under an existing ordinance and who begins work or expends money on the strength of the permit, acquires certain vested rights that cannot be taken away from him by a repeal of the ordinance, or attempted revocation of the permit, is shown by what the Texas Court of Civil Appeals said in the case of Brown vs. Grant, 2 S. W., 2d series, 285:

"No one gainsays that a municipal government within its police power has the right to prescribe rules regulating the character of buildings to be erected and the material to be used within certain prescribed boundaries, and also requiring permits to be first obtained before entering on their construction. But such ordinances must be and relate to the future. Of course, that does not prevent cities from moving to abate nuisances whenever occurring.

"The defendant, in pursuance to the power and rights conferred by the city permit, began his work and spent money on the building prior to its attempted repeal. This permit under the ordinance created a vested right in him to complete the work in hand, and he was protected by all laws, both state and federal. The action of the city in granting a repeal in so far as his rights are concerned was equivalent to the violation of a contract."

Ordinance Requiring Users of Highways to Obey Orders Given By Policemen with Reference to Use of Highways—Held Void

A borough ordinance which requires that "pedestrians and drivers shall . . . . obey the orders given them by the policeman of the borough with reference to the use of the highways" is void, in that it delegates to police officers an arbitrary power to direct what the citizen must do with reference to the highways and tends to deprive persons of the equal protection of the laws. (Circuit Court, Allegheny County, Pennsylvania; Commonwealth vs. Maguire; 19 Pa. Munic. Law Rep. 115.)

Compensation of Prohibition Police Officers Payable Out of Fines and Based on Number of Stills Captured—Not Sanctioned

Special county policemen in Milton County, Georgia, were employed on an understanding that they were to be paid so much for each illicit still captured, payable out of a fund arising from fines and forfeitures imposed in enforcing the prohibitory law. In the case of Eison vs. Shirley, 141 S. E. 295, the Georgia Supreme Court held that this arrangement was not sanctioned by the laws of the state and that therefore no claim for such fees was enforceable by the officers against the county.

There Can Be no Vested Right to Maintain Private Business Structures Within Streets Limits

The city of Cincinnati adopted an ordinance declaring to be nuisances all gasoline pumps, gasoline filling-stations, and other automotive service stations when operated upon public sidewalks, and ordered abatement of existing stations. Sustaining the validity of this ordinance in the case of Rowe vs. City of Cincinnati, 159 N. E. 365, the Ohio Supreme Court said, in part:

'An abutting owner does not have such right of property in the public streets as to give him the right to appropriate a portion of the street permanently to the purpose of his private business."

Members of a Board Cannot Act Individually at Different Times and Places as a Substitute for Action at a Meeting of the Board

An opinion of the Texas Court of Civil Appeals follows the quite well-settled rule that action of city councilmen or commissioners individually and at different places cannot afford a legal substitute for action at a meeting of their body. So, it was held that nothing that commissioners of a city may have said casually to an applicant for permission to establish a funeral establishment at a given location could bind the city or the commissioners to a grant of the permit. (King vs. Guerra, 1 S. W., 2d series, 373.)

Where City Permitted Plumbing to Be Installed in Manner Violating Statutory Regulations, Proper Installation Might Still Be Required

In the case of City of Newcastle vs. Withers, 139 Atl. 860, decided by the Pennsylvania Supreme Court, it was held that the fact that city authorities had permitted plumbing to be installed in violation of statutory regulations did not preclude the city from requiring reinstallation conforming to the ordinance. Referring to a contention made to the contrary by counsel, the Court said:

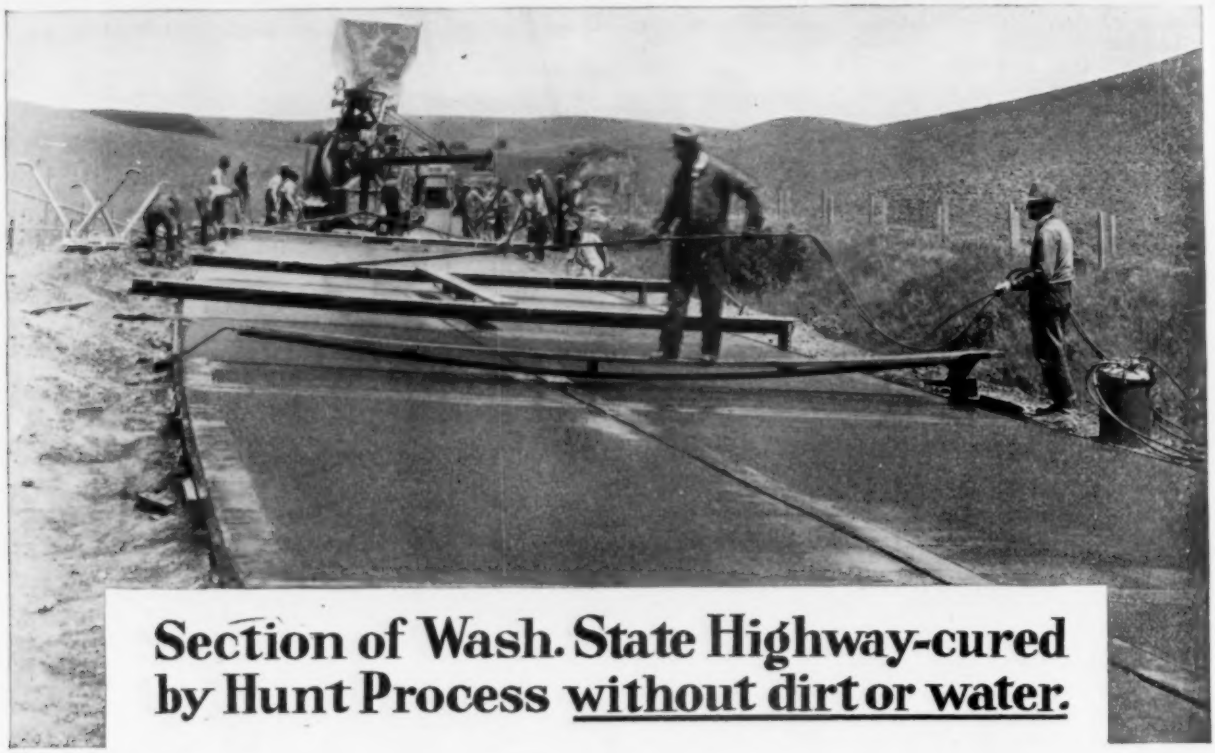
"This is, to say the least, a somewhat novel contention. In essence, it means that, if a state statute is violated in one of its municipalities and the municipal authorities do not move to prevent this being done, the statute ceases to have force and is as to that transaction repealed. To state such a doctrine is to refute it. Of course, . . . municipal corporations, just as other corporations, may be estopped under certain circumstances by their acts and conduct, but a municipality cannot, by neglecting or refusing to enforce a state law, render it inoperative against him who has violated it and thus give him immunity."

Ordinance Requiring Milk to Be Served in Original Containers—Upheld

An ordinance of the city of Milwaukee requires that milk sold for consumption on the premises where sold shall be in the original containers, well capped or sealed, and that the same be served either in such containers or be opened in the presence of the consumer. The ordinance further requires that such milk shall be bottled either at a dairy or milk plant.

Upholding the validity of this ordinance in the case of City of Milwaukee vs. Childs Company, 217 N. W. 703 the Wisconsin Supreme Court said:

"It is a matter of common knowledge that milk is a prolific source of disease and that it is easily contaminated. Every regulation relating to the handling of milk which minimizes the opportunity for contamination is promotive of the health of the community. The regulation provided by the ordinance in question certainly has that effect. The state law regulating restaurants does not deprive the city of Milwaukee of the power to regulate the sale of milk. The sale of milk is not confined to restaurants. The ordinance regulates the sale of milk whether the sale takes place within a restaurant or elsewhere. The state law regulating restaurants deals in a general way with the broad subject of restaurants. The fact that neither the state law nor the regulations of the State Board of Health enacted pursuant thereto, attempt to prescribe regulations for the sale of milk, cannot deprive the city of the power expressly granted to it. . . .



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"The dealer cannot justify non-compliance with such regulations by asserting that this method of handling milk was just as sanitary as the regulations prescribed by the municipality. It is possible that, if all dealers handled milk as defendant did, there would be necessity for the ordinance. But the fact that many dealers do not observe sanitary methods in handling milk makes such regulations necessary or proper. When such regulations are prescribed, they must be observed by all, by the considerate as well as by the inconsiderate dealer."

Shade Tree Held to Be Worth More Than Its Replacement Value

In the case of Nordgren vs. Southwestern Bell Telephone Co., 262 Pac. 577, the Kansas Supreme Court affirmed a judgment against defendant for treble damages on account of trees wrongfully cut on plaintiff's property in Iola. The damages were trebled under a Kansas statute. As to the primary measure of damage, the Court rejected a contention that replacement value afforded a proper basis, saying:

"Replacement value would for numerous reasons be a very unfair test. The element of depreciation would make replacement improper for a building. It would be equally unfair to the owner of a tree while he was waiting for it to acquire the extent of shade, size, and beauty of the one removed. In Paola v. Wentz, 79 Kan. 148, 153, 98 Pac. 775, 777 (131 Am. St. Rep. 290), it was said concerning a shade tree removed by the city from the curb line of an abutting owner that 'sentiment and utility combine to give it value.'"

The Legislature Cannot Impose Qualifications for an Office in Addition to Those Prescribed by Constitution

A Mississippi statute declaring that a mayor and aldermen increasing the indebtedness of a city without authority of the electors should not succeed themselves, was held to be void in the case of McCool vs. State, 115 So. 121, decided by the Supreme Court of that state. The provision of the Mississippi constitution found to have been violated is that all qualified electors shall be eligible to office, except as otherwise provided in the constitution. The Court said:

"It must be remembered that, from the establishment of the American government following the Revolution, down to at least 1890, the people have been jealous of their political rights, and their right to participate in the offices of the government and the management of public affairs, and this has been esteemed one of the privileges of American citizenship. . . .

"The Legislature, clearly, could make void a debt created in violation of law, and could make the officers incurring it subject to indictment, trial, and punishment, removal from office, but it cannot add to the qualifications prescribed by the constitution for holding office."

Prepared by
FRANK B. WILLIAMS
Author of **"The Law of City Planning and Zoning"**

ZONING NOTES

From Data collected by the Zoning Committee of New York
(233 Broadway)

Recent Zoning Decisions

CALIFORNIA.—*Macgruder v. Redwood City,* 265 Pac. 806. Zoning ordinances are not discriminatory or unreasonable because they prohibit the establishment of any new business of a given kind within a certain district while permitting the continuance of existing establishments of the same kind and character.

CALIFORNIA.—*Ryan v. Andriano,* 266 Pac. 831. Provision of city charter giving Board of Supervisiors power to make and enforce all necessary local police regulations did not authorize the Board to exercise all powers which may be legitimately exercised under its police power without appropriate legislation predetermining the rules of conduct by which such police power will be regulated.

MISSOURI.—*Aufderheid v. Polar Wave Ice and Fuel Co.,* 4 S. W. (2nd) 776. Suit in equity to enjoin as a potential or anticipated nuisance the erection upon the lot in question of an ice plant, contrary to the terms of a zoning ordinance of the city. In a former suit (*State ex rel. v. McKelver,* 301 Mo. 1, 256 S. W. 474), the proposed location of the plant upon this lot was before the Court. That was a proceeding to require the Building Commissioner to issue a permit for the building. The proceeding turned upon the constitutionality of the zoning ordinance. The Court ruled that the ordinance was unconstitutional and ineffective. Since that time, in another proceeding (*State ex rel. Oliver Cadillac Co. v. Christopher,* 298 S. W. 720) the Court has decided that the ordinance is constitutional. *Held,* that the ruling in the McKelvey case became a rule of property, and the applicant therefore is not prevented by the zoning ordinance from obtaining her permit.

NEW YORK.—*Village of Granville v. Krause,* 228 N. Y. Supp. 204. A map designated "Preliminary Plan for the Extension and Development" of a village, showing streets never dedicated, laid out or established, and mythical parks and buildings, but not definitely showing the location of the corporate limits, or the limits of residence or industrial districts, is not the 'well-considered plan' required as a basis for zoning by the Village Law of the state, on account of its indefiniteness, visionary character and total failure to district and divide.

NEW YORK.—*Rice v. Van Vranken,* 132 Misc. Rep. 82, 229 N. Y. Supp. 32. Where there was nothing in zoning ordinance saving existing building permits, and no actual construction work had been commenced when ordinance became effective, expenditures and obligations incurred for plans and specifications, financing, and building materials in reliance on such permits before and subsequent to enactment of zoning ordinance were insufficient to give owner a vested right to erect buildings in violation thereof.

Property owners in immediate vicinity of defendant's property held entitled to maintain action in equity to enjoin defendant's construction of apartment buildings in residence districts zoned for single-family and two-family residences, as against contention that remedy at law by proceeding against building inspector charged with enforcement of ordinance was adequate.

Recent Zoning Literature

In an article entitled "Zone Map Changes by Board of Estimate'" by Edward M. Bassett, appearing in the *New York Times* and the *Brooklyn Eagle* of June 24, and other New York City papers, he states that during 1927, for the first time since 1920, the relaxing changes of the New York City regulation exceeded the strengthening changes.

During the first four years of the life of the resolution (1916-1919) the relaxing changes made by the Board were more numerous than the strengthening changes, but the proportion of strengthening changes was greater each year. In the fifth year, however, the strengthening changes exceeded the relaxing changes, continuing so until and including last year.

Housing, published quarterly by the National Housing Association of New York City, in its review of housing events, invariably gives valuable information with regard to zoning. In the June issue the article, "The Progress of Zoning," portrays the recent character and extent of zoning in this country.

The National Conference on City Planning has published as a pamphlet the address of the President of the American City Planning Institute delivered in Dallas, entitled "What is Comprehensive Zoning?" It is a contribution to the literature of zoning well worth careful study.

The relation of building height to street traffic in this country is a problem which with experience seems to be growing more difficult of practical solution. Herbert D. Simpson, Associate Professor of Economics at Northwestern University, publishes a mathematical study on this subject in the July number of the *National Municipal Review* which, as he says, "anyone can understand." It discusses only one factor of a most complex subject, and therefore does not attempt to solve the problem as a whole. The article, as a novel approach to it, is most timely and welcome.

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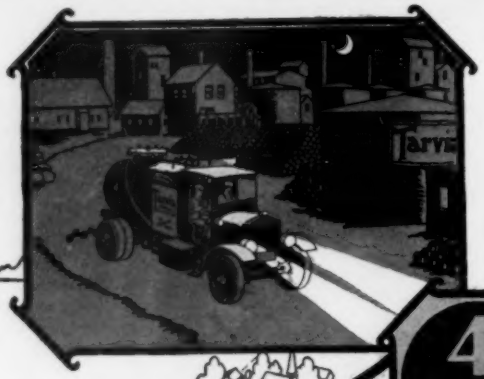

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MUNICIPAL AND CIVIC PUBLICATIONS

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Community Problems.—By Arthur E. Wood, Ph.D., Associate Professor of Sociology and Director of Curriculum of Social Work, University of Michigan. The Century Co. 1928. xiv + 590 pp. $3.75.

This is a volume of the Century Social Science Series, of which Dr. Edward Alsworth Ross, of the University of Wisconsin, is general editor. Of the manner of the book, the editorial introduction has this to say: "Realist though he is, loving ever to feel beneath his feet the solid ground of facts and figures, our author is a true democrat, plotting always how the means of realizing the 'good life' may be brought within the reach of all." Of its matter he says: "By setting forth what has been achieved here and there and otherwhere, it defines the Possible for the community that has courage and hope." What the humanizing social science of our day means—or may mean—to the individual community in terms of better housing, health, recreation, and in creative Americanization, constitute the main part of the book, which has an excellent introductory chapter on just what the community is, sociologically, and an equally excellent concluding statement on the philosophy of community organization. "Questions and Projects for Reports and Discussion" and a brief bibliography at the end of each section add to the book's value to advanced students of social science, and the surprising amount of practical material of fairly recent development in every field of community endeavor discussed, makes it a useful work for the responsible, civic-minded citizen.

A Model Municipal Budget Law.—Submitted by a special committee of the National Municipal League, Carl H. Pforzheimer, Chairman, C. E. Rightor, Secretary. Published as a supplement to the *National Municipal Review*, July, 1928. Sound procedure for financial planning to replace the old "government by deficit." (Apply to the League, 261 Broadway, N. Y.)

Oxford Town Planning Scheme.—A preliminary statement in detail of the proposed development of Oxford has been made available by the Town Planning Committee, of which Alderman the Rev. J. Carter is chairman. 8 pp., 8 x 14, with folding map 60 x 72. 2s. 6d. net. (Apply to the Committee, Oxford, England.)

The Annual Report as Feature News.—A 10-page feature section of the *Bluefield Daily Telegraph* (W. Va.) under date of February 5, 1928, constitutes that city's annual report for 1927. The 4-column central page space is devoted to department reports and statistics, illustrated with photographs, charts, etc., and descripive articles lend eloquence to municipal progress and accomplishments. (Apply to Boyd A. Bennett, City Manager.)

Model Housing Ordinance.—In 1927 a Housing Enabling Act became law in Pennsylvania. The Technical Advisory Committee of the Pennsylvania Housing and Town Planning Association has developed a model housing ordinance in accordance with this law for first-class townships, boroughs, and small cities, "governing and regulating the construction, alteration, repairs, occupation, maintenance, sanitation, lighting, ventilation, water-supply," etc., of buildings or parts of buildings for human habitation, and the sanitation and inspection of land appurtenant thereto; providing for the enforcement of the same and prescribing penalties for the violation thereof. 8 pp. (Apply to the Association, 17th and Walnut Sts., Philadelphia.)

The New Spirit of Fort Wayne.—The 9th Annual Report of the Ft. Wayne (Ind.) Chamber of Commerce is a 64-page, paper-bound booklet presenting a well-rounded program of achievements along industrial, commercial and civic lines. The ten-year program adopted in 1927 is shown to have been adhered to, and new activities introduced. The whole constitutes an attractive exhibit of report-making. (Apply to the Chamber.)

Water Purification.—By Joseph W. Ellms. M. Am. Soc. C. E., A.W.W.A. McGraw-Hill Book Co., Inc., New York, 1928. Second edition. XII + 594 pp. $7.00.

The first volume of this preeminent book on the purification of water for domestic uses gave a very complete account of the development of the art of water purification. The second edition, which follows the first after ten years, takes cognizance of the advance in the art of water purification during this period. A new chapter has been added on hydrogen-ion concentration of natural and purified waters. It is perhaps needless to say that this book is a standard textbook and also a volume constantly referred to by water-works operators, superintendents and engineers.

Proceedings, 14th Annual Road School, Purdue University.—Bulletin No. 19 of the Extension Engineering Department of the University, compiled and edited by Ben H. Petty, Assistant Professor of Highway Engineering. It contains 21 papers on street and highway matters, covering surveying, plans and specifications, construction, reconstruction, maintenance, resurfacing, city pavements, transportation, safety, and miscellaneous. 124 pp. (Apply to Dean of Engineering, Purdue University, Lafayette, Ind.)

Road Materials of Arkansas.—Bulletin No. 4 of the Engineering Experiment Station, University of Arkansas, by W. R. Spencer, Professor of Civil Engineering. A report of a survey of road materials, including laboratory tests of 2,500 samples collected from 57 counties. 82 pp., of which 57 are tables. Illustrated. March, 1928. (Apply to the Director of the Station, Fayetteville, Ark.)

Social Case Work.—A bibliography of American Publications, compiled by Frederick Warren Jenkins. Revised 1928. 12 pp. 20c. (Apply to the Russell Sage Foundation, 130 E. 22nd St., New York.)

Twenty Years of Blindness Prevention.—The National Society for the Prevention of Blindness is able to report a 20-year lifetime of splendid accomplishments, including the spread of pre-school eye-testing all over the United States, a marked decrease in certain causes of blindness, etc. It also reports that, great as are its accomplishments, its future tasks are greater. What these are is explained in a 32-page annual report just issued. (Apply to the Society, 370 Seventh Ave., New York.)

Children in Street Work.—The status of the so-called "street trades," with laws and ordinances affecting them, together with detailed reports on street workers in four selected cities, make up the 353 pages of Children's Bureau Publication 183, United States Department of Labor. Interesting tables of working hours, earnings, disposition of earnings, etc. Newspaper selling, which predominates, should be strictly supervised; while the effect of such work on physical and mental development and morals is not strictly measurable, it is bad. 50c. (Apply to Government Printing Office, Washington. D. C.)

Budget Facts and Financial Statistics.—Financial affairs in Minneapolis, Minn., for the year 1928 are completely presented in a 40-page booklet of text statistics and graphs. Indexed. (Apply to Board of Estimate and Taxation, City Hall.)

Saskatchewan Association of Rural Municipalities.—Report of Proceedings of 23rd Annual Convention, 1928, with complete papers, financial reports, resolutions, etc. 62 pp. (Apply to J. J. McGurran, Secretary-Treasurer, Nokomis, Sask.)

Contribution of the Community Chest to Community Welfare Planning.—By Rowland Haynes, Secretary, University of Chicago. Reprint of a paper read at National Conference of Social Work, Memphis, May, 1928. 14 pp. (Apply to Association of Community Chests and Councils, Graybar Bldg., New York.)

Proceedings of the American Concrete Institute.—The 24th annual convention of this organization, held in Philadelphia at the end of February, 1928, is reported in a cloth-covered volume of 882 pages, which includes papers on a variety of subjects, with discussion. Some of the topics are gone into very completely, there being six papers, for instance, on certain aspects of the workability of concrete, with 18 pages of discussion. A concrete primer, or catechism, by F. R. McMillan, Director of Research of the Portland Cement Association, occupies 41 pages, including discussion. A paper on "Design and Cost Data for the 1928 Joint Standard Building Code," by Arthur R. Lord, of Chicago, takes up 208 pages, with discussion; it includes a complete set of designers' tables and diagrams. "Crazing" of concrete is dealt with in two papers. Architectural as well as engineering subjects are dealt with. Committee and business reports, and a list of registrants, are given. $10. (Apply to the Institute, 2970 W. Grand Boulevard, Detroit, Mich.)

Additional Zoning Decisions, New Jersey Supreme Court.—Report No. 219, Bureau of Municipal Information, New Jersey State League of Municipalities, supplementing report 218, is a 20-page multigraphed report of the most recent decisions under the new state constitutional amendment and the 1928 zoning law of New Jersey. $1. (Apply to the League, 34 W. State St., Trenton, N. J.)

Minnesota Fire Department Statistics.—Through cooperation of the Minnesota Fire Department Association, the League of Minnesota Municipalities offers its first compilation of this kind, under date of June 10, 1928. It is Publication 25 and consists of 14 pages of tables showing the amount and kind of equipment in detail; and the number of men in each department, numbers paid full time, part time, and on a volunteer basis; organized relief societies, etc. 25c. (Apply to the League, 15-16 University Library, Minneapolis, Minn.

Piedpoudre Courts.—A Study of the Small Claim Litigant in the Pittsburgh District, by Gustav L. Schramm, LL.B., Ph.D. Published by the Pittsburgh Legal Aid Society. The problem is: Can private persons involved in controversies over small amounts secure justice through present court organization and administration; and if not, in what direction does justice for the small claimant, or the poor man, lie? Bibliographies, tables, cases appended. 219 pp. (Apply to the Society.)

Proposed Rules for a Public Personnel Agency.—For a number of years the Bureau of Public Personnel Administration has been engaged in the preliminary study which has led up to the drafting of these rules, which are 66 in number, and which are published with a prefatory article and an outline, in the June issue of *Public Personnel Studies*. 40 pp. 50c. (Apply to the Bureau, Mills Bldg., Washington, D. C.)

Report on the Gas Rates in the City of Duluth.—The Taxpayers' League of St. Louis County has collaborated with the Gas Committee of the Duluth Chamber of Commerce in investigating gas rates in Duluth, and in preparing this report of 53 mimeographed pages. A controversy had arisen in the city commission over the adequacy of the rates for gas, which is supplied by the city as a municipal enterprise. The report stated that the rate schedule will produce an adequate revenue, but is unscientific and inequitable. An interesting analytical study of the gas rate situation is presented, together with a recommended schedule. (Apply to the League, 217 Torrey Bldg., Duluth, Minn.)

Endowed Foundations in the United States.—By Pierce Williams, Association of Community Chests and Councils, with a description of each. 17 pp. (Apply to the Association, Graybar Bldg., New York.)

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Community Civics.—By Howard C. Hill. Ginn and Company, Boston, Mass. 471 pp. $1.40.

Mr. Hill has brought to the making of his elementary textbook the most modern point of view as to what constitutes civics. He treats of the subject as embodying not only matters pertaining to governmental machinery, but also governmental functions of many sorts, and such relationships and problems as appear in the everyday life of the community. The book falls into three divisions. Part I treats of the chief features of human society as apparent in the home, the school, the church, the local community, the nation and the world. Part II deals with the elements of community welfare such as health, public protection, recreation, civic planning. Part III discusses government as an institution engaged in meeting human needs.—making law, enforcing legislation, establishing justice, providing service. Each section is divided into teaching units, and teachers' aids are given in numerous forms including suggestive questions and problems; illustrations, graphs and maps.

The United States Chamber of Commerce Reports.—The 16th Annual Report of the Board of Directors, Chamber of Commerce of the United States, presents accounts of activities in the fields of legislation, service, research, promotion, and various other endeavors. To it are appended resolutions taken at the annual meeting, officers and directors 1928-29, and other data. 56 pp. (Apply to the organization, Washington, D. C.)

Legal Progress in Chicago.—The annual report of the Law Department, Chicago, 1926, available in substantial skiver binding (72 pp.) contains accounts of public service litigation, damages due to public improvements, municipal zoning, taxation, municipal legislation, etc. (Apply to Municipal Reference Library, City Hall, Chicago, Ill., enclosing 10c postage.)

Montana's 100 Community Houses.—Some of them are of rough logs and have one or two rooms; some are pretentious structures costing $30,000 to $40,000. Some are rural-urban, others are purely rural; some are 25 to 50 miles from a settlement of any consequence, but distance is nothing in Montana, and no family wanting somewhere to go stays at home if the flivver is in running order. The how and the why are told by J. Wheeler Barger, Department of Rural Life, Agricultural Experiment Station of Montana, in an article (one page), in *Rural America*, June, 1928. 20c. (Apply to American Country Life Association, 105 E. 22nd St., New York.)

Oak Park at Play.—Delinquency and gang activities were practically eliminated from the play-grounds of Oak Park, Ill., last year. Instead, little tots, dressed "in character," told their favorite stories; the children's playground theater worked at top speed; dramatics, swimming, music, athletic events and dancing flourished. Details of all this are interestingly given and illustrated with photographs in the annual report of the Park Board, 1927. 32 pp. (Apply to the Board.)

Play Days.—By Helen Norman Smith, Head, Department Physical Education, University of Cincinnati, and Helen L. Coops, Assistant Professor, Physical Education, University of Cincinnati. A pamphlet considering the Play Day project and its correlation with programs of physical health and education in city high school, rural high school, and college. Bibliography. 45 pp. Paper-bound. 75c. (Apply to A. S. Barnes & Co., 67 W. 44th St., New York.)

Pageants With a Purpose.—Sections 209, 210, and 211, "For the Physical Education Hand Book, Loose Leaf Plan," as edited by Linwood Taft, Ph.D., and published by A. S. Barnes & Co., New York, have just been issued. They are: "The Anger of the Sun," as adapted from Shinto legends by Marie Drennan, with descriptions of costumes, and sources of music and dances; 15 pp.; 50c. "The Vision of Sir Launfal," adapted from Lowell's poem by Dorothy Clark and Georgia Lyons Unverzagt, with directions; 15 pp.; 50c. "A Port of Dreams: a Dramatic Pageant," arranged by Katharine Linder Chapman; adapted from the Russian, with scenery, property and costume sheets, illustrated. 31 pp. $1. (Apply to the publishers.)

Town Planning, City Planning, Urbanisme, and Städteban.—This is the title of an address by G. Montagu Harris, O.B.E., President of the (British) Town Planning Institute, recently at a joint meeting of city planners and county engineers at Huddlesfield, England, and reprinted in the *Journal* of the Town Planning Institute with the discussions that followed. The idea of town planning has spread throughout the world, but the application of the term, and even the term used in different countries, differs. Each country may learn valuable lessons from the experiences of the others. 9 pp. (Apply to the *Journal*, 11 Arundel St., London, W.C.)

Plan for the Central River Front, St. Louis, Mo.—The first of a series of reports dealing with riverfront improvement in St. Louis is a substantial, attractive 40-page study, 8½ x 11, with a high type of art work in its illustrations, which include a three-fold insert frontispiece showing the proposed business district as visualized by Hugh Ferriss, a decorative tailpiece etching, a colored study by Fred Graf, and numerous plates. The plan proposed and illustrated is composed of several interdependent projects, including new hundred-foot thoroughfares from the north-northwestern and from the south-southwestern parts of the city into Third Street in the business district, and the construction of elevated roadways in these two thoroughfares having a capacity of six lines of high-speed, non-stop traffic. Also the widening and double-decking of a section of Third Street; the acquisition of an expanse of property along the river for a waterfront plaza, and several other projects, including the use of the lower levels of riverfront plaza for public parking space and garage, subway terminals, etc. $1.50, prepaid. (Apply to City Plan Commission, Municipal Courts Bldg., St. Louis.)

Housing and Town Planning in Massachusetts.—One hundred planning boards organized, with four to be added at the 1928 annual town meetings; fifty-seven places zoned; and interest aroused and conferences held on regional and state planning: these are some of the items from the Annual Report of the Division of Housing and Town Planning, Massachusetts Department of Public Welfare, which not only records accomplishments in detail, but suggests lines for future endeavor. (Apply for Public Document No. 103, from Department of Public Welfare, State House, Boston, Mass.)

Relative Proportion of Business to Population.—A 10-page reprint of an article by A. E. Williamson, Zoning Engineer, Los Angeles Regional Planning Commission, from the *Community Builder*, June, 1928. (Apply to the magazine, 827 Union League Building, Los Angeles, Calif.)

Public Parks of Baltimore, No. 3.—A 35-page description of historic Druid Hill Park, uniform with previous booklets devoted to Federal Hill and Patterson Parks. Compiled by J. V. Kelly, Secretary, Park Board. (Apply to the Board.)

A Little Manual for Motorists.—Revised to July 1, 1928. Bulletin 56, Connecticut Department of Motor Vehicles, contains in 22 pages the essential information required by the motorist to enable him to comply with state regulations. Prepared by Malcolm D. Rudd, Deputy Commissioner. (Apply to the Department, Hartford, Conn.)

A Bibliography on Regional Government.—Prepared by Roland Mulhauser, Library of Research in the Social Sciences, Western Reserve University, and R. O. Huus, Department of Political Science, Western Reserve University. 59 multigraphed pages, containing sections on the subject in general; on specific forms of regional government; county government; towns, townships, villages, and boroughs; legal aspects; and an index. This is a careful study into the various phases of an important and timely subject. 50c. (Apply to Roland Mulhauser, above address, Cleveland, O.)

Financial Primer of Atlantic City's Government.—A series of six articles, illustrated with charts, reprinted in pamphlet form, from the *Atlantic City Daily Press*, in which they were run with the idea of popularizing details of the city's spending. (Apply to the Press-Union Publishing Co., Atlantic City, N. J.)

Five Years in Fargo; Public Health Work in Fargo.—Two publications, being Bulletins 7 and 8, Child Health Demonstration Committee, 370 Seventh Ave., New York; and Parts I and II, Final Report, Fargo Demonstration. Published by The Commonwealth Fund, Division of Publications, 578 Madison Ave., New York. Pamphlet I reviews the development of a community health program in Fargo, N. Dak., 1923-1927, when a child health demonstration was carried on by the Commonwealth Fund and the city of Fargo, with cooperation from local sources. Part II, by W. F. Walker, D. P. H., Field Director, American Public Health Association, presents a formal appraisal of the general public health activities during 1927. 52 pp. and 24 pp., respectively. Part III, shortly to follow, is a technical monograph describing the child health activities in detail. (For publications, apply to the Fund, at address given. Correspondence about the demonstrations other than requests for printed matter should be addressed to the above Committee.)

Outdoor Community Advertising.—Don E. Mowry, author of "Community Advertising," and for a number of years Secretary-Treasurer of the American Community Advertising Association, presented before the recent convention of the Outdoor Advertising Association and the International Advertising Association, the paper which comprises 50 pages of this 64-page booklet. With the paper appears a list of agencies in this field, arranged by states. Illustrated. 25c. (Apply to American Community Advertising Association, Madison, Wis.)

The Brookings Institution.—This new organization in Washington has two primary purposes: to aid constructively in the development of national policies, and to supplement the educational organizations of the country. It is the outgrowth of experimentation in research and training conducted for some years by the Institute of Economics, the Institute for Government Research, and the Robert Brookings Graduate School of Economics and Government, all of Washington. The Brookings Institution is fully described in a 20-page booklet. (Address the Institution, Washington, D. C.)

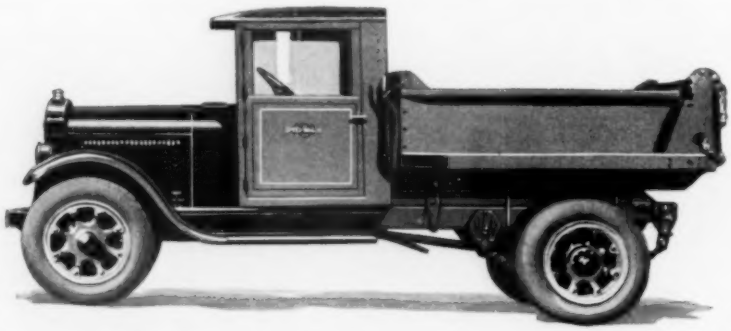
Organizing for Aeronautical Development.—A summary of experience of commercial organizations in the promotion of air transportation, prepared by the Committee on Aeronautics of the Chamber of Commerce of the United States. 31 pp. (Apply to Transportation and Communication Department, Chamber of Commerce of the United States, Washington, D. C.)

Das Kraftwagen-Strassennetz Deutschlands (The Automobile Highway System of Germany).—A paper in German by Dr. Ing. Ph. A. Rappaport, of Essen, Germany, illustrated by a general map of Germany, showing the through motor routes and a more detailed portion of the highway map. Reprinted from *Zeitschrift Des Vereines Deutscher Ingenieure* for May, 1928. 3 pp. (Apply to Dr. Rappaport, Burgstrasse 16, Essen, Germany.)

Laws of Illinois Relating to Commission Form of Municipal Government.—A vest-pocket manual compiled by Louis L. Emmerson, Secretary of State of Illinois, giving laws in force July 1, 1925. A list of 66 cities and villages having the commission form is included, January 7, 1927, being the latest date of adoption given. 79 pp. (Apply to Mr. Emmerson, Springfield, Ill.)

Recent Developments in Sewage Chlorination.—Reprint No. 1165 from *Public Health Reports* for June 17, 1927. An abbreviation of a paper by L. H. Enslow, sanitary engineer, The Chlorine Institute, New York, presented at the Texas Water-Works School, January, 1927. 19 pp. 5c. (Apply to Superintendent of Documents, Government Printing Office, Washington, D. C.)

The City Plan: Object and Scope.—By Harold M. Lewis, Executive Engineer, Regional Plan of New York and Environs.—Service Booklet "1" issued by W. and L. E. Gurley, Troy, N. Y., supplements the "City Survey" booklet, discussing briefly the community activities and needs which should be studied, as the former discussed the need of a complete city map as a working basis for the city plan. 28 pp. (Apply to the firm.)



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The National Institute of Public Administration.—By Luther Gulick, Director and Secretary. National Institute of Public Administration. New York. 1928. 106 pp. $1.25.

This is, to quote the author, "a new kind of progress report." In introduction, the progressive urbanization process, shown to be one of the most significant movements of modern times, is sketched in with swift strokes; it is shown how grave problems of cities came close on the heels of this movement and brought a corresponding need for methods of dealing with these problems which involved extreme poverty, slums, political intrigues, corruption, and a score of attendant evils. Thus the birth of the governmental research movement is described in correct historic perspective, having occurred when the National Municipal League, which came in on a wave of municipal reform in the 90's, "headed up the first organized effort to deal with structure" while "the first important effort to deal broadly with the technical processes of administration was made by the Bureau of Municipal Research in 1906." The activities since that time of the Bureau of Municipal Research, the Training School for Public Service, which was affiliated with it in 1911, and the National Institute of Public Administration, into which both were fused in 1921, make up the substance of the volume. The book may be called a record of the past and a promise of the future of scientific government in the United States.

A Record System for the Cincinnati Police Department.—A 100-page mimeographed report of the Cincinnati Bureau of Municipal Research, made at the request of the City Manager. Findings and recommendations are based upon local conditions and requirements, with regard, however, for the experiences of other important cities. In view of widespread recent publicity given to the general inadequacy of police record administration, this study should prove of both interest and value to officials of other cities having general authority over police work. (Apply to John B. Blandford, Jr., Director, 312 W. 9th St., Cincinnati, Ohio.)

Crime and Criminal Justice.—What are the causes of crime? How is the community combating crime? These questions are being examined by the Bureau of Municipal Research of Cincinnati, which now seeks to establish a fact basis for crime cure study. Pamphlet No. 4 of the Bureau outlines the general field of criminal justice in which studies are being conducted. (Apply to the Bureau, 312 W. 9th St., Cincinnati, Ohio.)

Detroit Metropolitan Area.—The state constitution of Michigan was amended some time ago to permit of the establishment of metropolitan districts. This had special reference to the needs of Detroit. A state enabling act is now necessary to provide for the incorporation of a Detroit metropolitan area, or of areas. In order that such legislation may be framed in the most effective way as respecting parks, sewage disposal, water, light, power, and other important factors, a study committee has been formed representative of the municipalities concerned, and a tentative enabling act is being framed. Report 106, Detroit Bureau of Governmental Research, Inc., is made up of charts of the metropolitan area designed to facilitate the study and action of the committee. 12 pp. 25c. (Apply to the Bureau, 51 Warren Ave., W.)

Fire Prevention Ordinances of Chicago.—A booklet of 268 pp., giving the fire prevention ordinances and other ordinances relating to the Fire Department of the city of Chicago, with amendments up to and including May 15, 1928. 50c.; 10c. postage. (Apply to Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

The Ground-Water Resources of Mississippi.—Water-Supply Paper 576, U. S. Geological Survey, by Lloyd W. Stevenson, William N. Logan, and Gerald A. Waring, with discussions of the chemical character of the waters, by C. S. Howard. A volume of 515 pp., prepared in cooperation with the Mississippi State Geological Survey. Three folded maps are included, in a cover pocket. 90c. (Apply to Superintendent of Documents, Government Printing Office, Washington, D. C.)

Public Library Administration.—By John Adams Lowe, Assistant Librarian, Brooklyn Public Library. Chicago Library Association, 1928. x + 175 pp. $1.50.

The author has had in mind, primarily, the preparation of a basic text-book for library school use in the instruction of students of college grade who are preparing themselves for library executives. It will be found useful also, he believes, to persons trying to discover for themselves essential principles of public library administration. The "medium-sized" library is accepted as the type to which discussion is limited so far as possible, though the author believes that the principles which have the most value for the student are equally applicable to libraries large and small. Chapters are devoted to "The Librarian as Administrator"; "The Librarian as Trustee"; 'Finances"; "Purchasing of Books and Supplies"; "Administrative Organization"; 'Significance of Statistics"; and "Public Library Opportunities." Accounting forms and other record report blanks are reproduced. Each chapter is followed by a list of references.

Public Park Rules, Baltimore, Md.—A 64-page, cloth-bound booklet sets forth in concise form the 54 rules and regulations relating to parks and public squares in effect during 1928 in Baltimore, with the section of the city charter relating to parks and squares appended, and a subject index. (Apply to J. V. Kelly, Secretary, Board of Park Commissioners.

Outdoor Advertising Regulations.—The powers of Illinois cities and villages to regulate outdoor advertising, a summary of cases, and suggested ordinances relating to billboards, signboards, and other forms of outdoor display, presented by Thomas A. Matthews, Attorney, make up the contents of Bulletin 30, Legal Division, Illinois Municipal League, (8 pp.) dated July 1. Of general interest, though relating particularly to action under Illinois state laws. (Apply to the League, Urbana, Ill.)

Salaries of City Officials in Wisconsin, 1928: Salaries of Village Officials in Wisconsin, 1928.—Two multigraphed tabulations of 11 and 17 pages respectively, constitute Information Reports Nos. 66 and 67, Municipal Information Bureau, University Extension Division, University of Wisconsin, and bring up to date the efficient annual compilations covering these subjects by Lorna L. Lewis, Librarian. Each has an introduction by Ford H. MacGregor, Chief. (Apply to the Bureau, Madison, Wis.)

The Water-Supply at Little Falls, N. Y.—The 33rd Annual Report, Board of Public Works, Little Falls, N. Y., 1927, in combination with the 40th Annual Report of the Water Commissioners, contains complete statistics of water consumption by months, and a yearly comparison report, also general waterworks construction and distribution statistics, and financial statements, meter reports, and rates. Six pages appended show the "Rates and Regulations for the Introduction and Management of the Water-Supply of the Little Falls Water-Works, 1888." (Apply to Board of Public Works.)

Town and City Halls.—Local government in New England takes three different forms, direct primary, representative assembly, and the two-branch city system. With these go three distinct types of municipal buildings—the town hall, the most direct descendant of the old Colonial meeting-house; the modified town hall; and the city hall. All of these at their finest are described and illustrated with plans and photographs in a charming 24-page, 8½ x 11 brochure issued by the architectural firm of Kilham, Hopkins & Greeley, 9 Park Street, Boston, Mass., which has made intensive studies with the aid of local officials in developing the individual buildings. (Apply to the firm.)

When Bob Came Home: A Report.—A fictionized account of "An American City in 1927," showing how general deadness was enlivened for everybody and life filled with wholesome interests by the coming of community recreation. 8 pp. (Apply to Playground and Recreation Association of America, 315 Fourth Ave., New York.)

Hydro-Electric Power Commission of Ontario, 20th Annual Report.—A 427-page paper-bound volume covering the activities of the Commission, for the year ending Oct. 31, 1927, together with financial statements of the municipal electric utilities operating in conjunction with the eight power systems supplied by 22 hydro-electric plants supplemented by purchased power. Cumulative results are also included. The peak demand of all the systems combined now exceeds a million horsepower. Statements of average costs to the consumer are given; the 1927 average for domestic consumers was less than 2 cents per kwh., and the greater part of power sold was at rates less than $25 per hp. per year. The report is illustrated. (Apply to the Commission, Toronto, Ont.)

Municipal Utilities Magazine.—A new magazine, published monthly by the Public Ownership League of Texas, beginning with May, 1928. J. P. Greenwood is Executive Secretary of the League and Editor of the magazine. The June issue, at hand, comprises 20 pages, and is attractively gotten up, having articles about specific municipal plants, with general articles also, besides editorials and news notes. (Apply to Mr. Greenwood, 935 Allen Bldg., Dallas, Texas.)

Force Account on Unit-Price Construction Contracts.—A 35-page report by the Bureau of Municipal Research of Philadelphia, prepared in the course of a study of municipal contracts that the Bureau is making as agent of the Thomas Skelton Harrison Foundation. It analyzes force-account provisions of specifications in a number of cities, and compares them with Philadelphia practice. Philip A. Beatty was in charge of the study. April 25, 1928. (Apply to the Bureau, 311 S. Juniper St., Philadelphia, Pa.)

Cost of Medical Care.—The Committee on Cost of Medical Care, with Ray Lyman Wilbur as Chairman, and a personnel made up of prominent physicians, public health officials and others, has been formed to study what is considered one of the most important problems before the medical profession today. This Committee's proposed five-year program, as recently adopted is set forth in their Publication No. 1. 40 pp. (Apply to the Committee, 910 17 St., N. W., Washington, D. C.)

Collection and Sale of Property for Unpaid Taxes and Assessments.—A 6-page pamphlet giving instructions on the subject, by Thomas B. Usher, former Secretary of the New Jersey State Board of Taxation. (Apply to Usher Publishing Co., 108-114 N. Broad St., Trenton, N. J.)

The Traction Problem of Chicago.—The Local Transportation Committee of the City Club of Chicago, which, with its predecessors, has dealt with this problem for over 20 years, has prepared a statement of the fundamentals of a proper settlement of the traction problem of Chicago, together with an outline of the study from which these were developed, and an explanation of them. 11 pp. (Apply to Municipal Reference Library, 1005 City Hall, Chicago, Ill.; 2c. postage.)

Gas Rates in Illinois Cities, Villages and Towns.—A 16-page pamphlet, constituting Bulletin No. 29 of the Illinois Municipal League, and dated May, 1928, giving the rates per thousand cubic feet, etc., charged for gas in Illinois municipalities. (Apply to the League, Urbana, Ill.)

Profits Earned by the Highways of North Carolina.—An address by Hon. Frank Page, Chairman of the North Carolina Highway Commission, at the annual meeting of the Vermont State Chamber of Commerce in June, describing the benefits to the people of the state resulting from an extensive road-building program. Reprinted by the Vermont Chamber. (Apply to the State Chamber of Commerce, Rutland, Vt.)

Report of Committee on Sanitary Control and Development of Ground Water Supplies.—A 13-page reprint (No. 1126) from Public Health Reports, a report originally made to the annual conference of State Sanitary Engineers in 1925. 5c. (Apply to Superintendent of Documents, Government Printing Office, Washington, D. C.)

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And careful buyers, thousands of them, are purchasing these 6 cylinder Graham Brothers Trucks—enthusiastic over their smooth, obedient power, proud of their fine appearance, surprised at the speed obtainable with perfect safety because of their 4-wheel brakes . . . .

Claims, promises and ballyhoo are crushed under the weight of purchasers' dollars.

See these trucks . . . . Drive the size that fits your business needs—they are built in the sizes that fit 95% of all hauling or delivery requirements.

Ask your local Dodge Brothers Dealer to demonstrate. You will see *why* truck operators everywhere are buying—*why* deliveries are being made at the rate of more than 300 a day.

$665
MERCHANTS EXPRESS
110″ wheelbase

$775
COMMERCIAL TRUCK
120″ wheelbase

$995
1¼-TON—130″ wheelbase

$1065
1¼-TON—140″ wheelbase

$1345
1¾-TON—150″ wheelbase

$1415
1¾-TON—165″ wheelbase

$1595
2½-TON—150″ wheelbase

$1665
2½-TON—165″ wheelbase

Chassis f. o. b. Detroit

GRAHAM BROTHERS TRUCKS

BUILT BY
TRUCK DIVISION OF
DODGE BROTHERS INC.

SOLD AND SERVICED
BY DODGE BROTHERS
DEALERS EVERYWHERE

Yes—we should like you to mention THE AMERICAN CITY.

County Government in Minnesota.—A 174-page pamphlet, designated as an outline, having special reference to Hennepin, Ramsey and St. Louis Counties, where the three largest cities of the state are located. It is Publication No. 7 of the Bureau for Research in Government, of the University of Minnesota, and is by William Anderson, Ph.D., Director of the Bureau, and Bryce E. Lehman, M. A., former research associate. It has been written for the citizen rather than the specialist, and deals with the nature, functions, organization and administration of the county, its legal status, finances and various other aspects, with a chapter of suggestions regarding next steps in county government. Historical and statistical data on the various counties are given in appendices. $1.50. (Apply to the Bureau, University of Minnesota, Minneapolis, Minn.)

Other Reports Received

CHICAGO, ILL.—Annual Appropriation Bill. 1928. 148 pp. 10c. Municipal Reference Library, Chicago, Ill.

COOK COUNTY, ILL.—Annual Appropriation Bill. 1928. 142 pp. 3c. Municipal Reference Library, Chicago, Ill.

COOK COUNTY, ILL.—Comptroller's Report, fiscal year ending January 17, 1927. 90 pp. 10c. Municipal Reference Library, Chicago, Ill.

DULUTH, MINN.—Annual Report, Water and Light Department. 1927. 30 pp. and insert tables.

FARMINGTON, MAINE.—Annual Report, Assessor and Treasurer; Annual Report, Water Department. 1927. 22 pp.

LOUISVILLE, KY.—Annual Report, Louisville Water Company. 1927. 84 pp.

MOBILE, ALA.—Annual Report, Chamber of Commerce; Annual Report, Junior Chamber of Commerce, year ending March 31, 1928. 44 pp.

NEWTON, MASS.—Annual Report, Fire Department. 1927. 28 pp.

ROANOKE, VA.—Annual Report. 1927. 66 pp.

SALINA, KANS.—City Clerk's Annual Report. 1927. 18 pp.

WINNIPEG, MAN.—Annual Report, City Health Department. 1927. 162 pp.

CONVENTIONS—WHEN AND WHERE

AUGUST 6, WEEK OF.—PALO ALTO, CALIF.
Western School for Commercial Secretaries. Annual session. Manager, Roy W. Smith, Palo Alto, Calif.

AUGUST 21-23.—CEDAR RAPIDS, IOWA.
League of Iowa Municipalities. Annual meeting. Secretary-Treasurer, Frank G. Pierce, Marshalltown, Iowa.

AUGUST 21-24.—CLEVELAND, OHIO.
Ohio Police Chiefs' Association. Annual convention. Secretary-Treasurer, E. G. Krause, 1020 Guardian Building, Cleveland, Ohio.

AUGUST 23-24.—HUNTINGTON, W. VA.
American Water Works Association, Central States Section. Annual convention. Secretary, E. E. Bankson, 1111 Union Bank Building, Pittsburgh.

AUGUST, LAST WEEK.—SYDNEY, CAPE BRETON, N. S.
Union of Nova Scotia Municipalities. Annual convention. Secretary, Arthur Roberts, K. C., Bridgewater, N. S.

SEPTEMBER 4-7.—KANSAS CITY, KANS.
League of Kansas Municipalities. Annual convention. Secretary-Treasurer, John G. Stutz, University of Kansas, Lawrence, Kans.

SEPTEMBER 5-8.—CAPE MAY, N. J.
Atlantic Deeper Waterways Association. Annual convention. Secretary-Treasurer, William E. Bernard, 1405 Widener Building, Philadelphia, Pa.

SEPTEMBER 10-12.—DENVER, COLO.
International Association of Electrical Inspectors, Western Section. Annual meeting. Secretary-Treasurer, William S. Boyd, 175 West Jackson Boulevard, Chicago, Ill.

SEPTEMBER 10-13.—INDIANAPOLIS, IND.
Association of American Cemetery Superintendents. Convention. Secretary, William B. Jones, Superintendent, Highwood Cemetery, Pittsburgh.

SEPTEMBER 13-14.—JOLIET, ILL.
Illinois Municipal League. Annual convention. Secretary, A. D. McLarty, Urbana, Ill.

SEPTEMBER 17-20.—TORONTO, ONT.
Illuminating Engineering Society. Annual convention. General Secretary, L. H. Graves, 29 West 39th Street, New York.

SEPTEMBER 18-20.—ASHEVILLE, N. C.
International City Managers' Association. Annual convention. Executive Secretary, John G. Stutz, Lawrence, Kans.

SEPTEMBER 18-21.—MONTREAL, QUE.
New England Water Works Association. Annual convention. Secretary, Frank J. Gifford, 715 Tremont Temple, Boston, Mass.

SEPTEMBER 25-27.—REGINA, SASK.
Canadian Good Roads Association. Annual convention. Secretary, George A. McNamee, New Birks Building, Montreal, Que.

SEPTEMBER 25-29.—LOS ANGELES, CALIF.
American Institute of Park Executives. Annual convention. Executive Secretary, Will O. Doolittle, Box 422, Tulsa, Okla.

OCTOBER 1-3.—BOSTON, MASS.
American Society of Mechanical Engineers, New England Regional Meeting. National Secretary, Calvin W. Rice, 29 West 39th Street, New York.

OCTOBER 1-5.—NEW YORK CITY.
National Safety Council. Annual Safety Congress. Managing Director, W. J. Cameron, 108 East Ohio Street, Chicago, Ill.

OCTOBER 1-5.—ATLANTIC CITY, N. J.
Playground and Recreation Association of America. Annual convention. Secretary, H. S. Braucher, 315 Fourth Avenue, New York.

OCTOBER 2-5.—KANSAS CITY, MO.
American Water Works Association, Missouri Valley Section. Annual meeting. Secretary-Treasurer, Jack J. Hinman, Jr., P. O. Box 313, Iowa City, Ia.

OCTOBER 3-5.—SAN DIEGO, CALIF.
American Society of Civil Engineers. Fall meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

OCTOBER 4.—SAN DIEGO, CALIF.
American Society of Civil Engineers, City Planning Division. Fall meeting. Secretary, Charles B. Ball, 4227 North Ashland Avenue, Chicago, Ill.

OCTOBER 4.—NEW YORK CITY.
National Automobile Chamber of Commerce. Members' meeting. General Manager, Alfred Reeves, 366 Madison Avenue, New York.

OCTOBER 5-11.—KANSAS CITY, MO.
American Prison Association. Annual Congress. General Secretary, E. R. Cass, 135 East 15th Street, New York.

OCTOBER 8, WEEK OF.—WINNIPEG, MAN.
Canadian Public Health Association. Annual meeting. General Secretary, J. T. Phair, Spadina House, Toronto, Ont.

OCTOBER 8-9.—TORONTO, ONT.
International Association of Street Sanitation Officials. Annual convention. Secretary, A. M. Anderson, 10 South LaSalle Street, Chicago, Ill.; Chairman Local Arrangements Committee, George W. Dies, Street Commissioner, Toronto, Ont.

OCTOBER 8-13.—GREAT SMOKIES NATIONAL PARK.
American Civic Association. Second Annual Traveling Meeting. Executive Secretary, Miss Harlean James, Union Trust Building, Washington.

OCTOBER 9-11.—MONCTON, N. B.
Union of New Brunswick Municipalities. Annual convention. Hon. Secretary-Treasurer, John B. McNair, Fredericton, N. B.

OCTOBER 9-13.—SAN BERNARDINO, CALIF.
League of California Municipalities. Convention. Executive Secretary, William J. Locke, 707 Chancery Building, San Francisco, Calif.

OCTOBER 13-15.—CHICAGO, ILL.
Conference of State Sanitary Engineers. Annual meeting. Secretary, Arthur P. Miller, 3 B Street S.E., Washington, D. C.

OCTOBER 15.—CINCINNATI, OHIO.
National Association of Civic Secretaries. Annual meeting. Secretary, Miss Grace Treat, Women's City Club, 1836 E. 13th St., Cleveland, O.

OCTOBER 15 (TENTATIVE).—MENASHA, WIS.
American Water Works Association, Wisconsin Section. Annual meeting. Secretary, L. A. Smith, Superintendent, Water-Works, Madison, Wis.

OCTOBER 15-17.—CINCINNATI, OHIO.
Governmental Research Association. Annual meeting. With National Municipal League convention. Secretary-Treasurer, Russell Forbes, 261 Broadway, New York.

OCTOBER 15-18.—DALLAS, TEXAS.
Southwest Water Works Association. Annual convention. Secretary, Louis A. Quigley, Fort Worth, Texas.

OCTOBER 15-19.—CHICAGO, ILL.
American Public Health Association. Annual meeting. Secretary, Homer N. Calver, 370 Seventh Avenue, New York.

OCTOBER 17-20.—PHILADELPHIA, PA.
International Association of Fire Chiefs. Annual convention. James J. Mulcahey, Yonkers, N. Y.

OCTOBER 15-21.—CHICAGO, ILL.
American Child Health Association. Annual meeting. Secretary, Dr. Philip Van Ingen, 370 Seventh Avenue, New York.

OCTOBER 16-17.—CINCINNATI, OHIO.
National Municipal League. Annual convention. Secretary, Russell Forbes, 261 Broadway, N. Y.

OCTOBER 20.—COLUMBIA, MO.
League of Missouri Municipalities. Annual meeting. Executive Secretary, B. F. Boyer, 1 B and P. A. Building, Columbia, Mo.

OCTOBER 21-24.—NASHVILLE, TENN.
National Association of Commercial Organization Secretaries. Annual convention. Secretary-Treasurer, A. S. Dudley, Chamber of Commerce, Sacramento, Calif.

OCTOBER 22-26.—DETROIT, MICH.
American Society for Municipal Improvements. Annual convention. Chairman Convention Arrangements, E. A. Wood, City Engineer, Dallas, Texas.

OCTOBER 23-26.—NEW ORLEANS, LA.
International Association of Municipal Electricians Annual convention. Secretary, Harold N. Lang, P. O. Box 1864, Orlando, Fla.

NOVEMBER 12-14.—RICHMOND, VA.
American Municipal Association. Annual meeting. Executive Secretary, John G. Stutz, Lawrence, Kans.

NOVEMBER 12-15.—CHICAGO, ILL.
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1222 National Press Building, Washington, D. C.

NOVEMBER 12-15.—CINCINNATI, OHIO.
International Association of Convention Bureaus. Annual meeting. Secretary-Treasurer, Fred Rein, 507 Commercial Building, St. Louis, Mo.

DECEMBER 3-7.—NEW YORK CITY.
American Society of Mechanical Engineers. Annual meeting. Secretary, Calvin W. Rice, 29 West 39th Street, New York.

DECEMBER 10, WEEK OF.—NEW ORLEANS, LA.
Asphalt Association. (Secretary and General Manager, J. E. Pennybacker, 441 Lexington Avenue, New York.) Annual Asphalt Paving Conference, held with the *annual convention of the Asphalt Paving Technologists* (Secretary-Treasurer, Charles A. Mullen, 82 Saint Antoine Street, Montreal, Que.).

JANUARY 14, WEEK OF.—CLEVELAND, OHIO.
American Road Builders' Association. Annual convention and Road Show. Secretary, Miss E. A. Birchland, National Press Building, Washington, D. C.

for Economical Transportation

CHEVROLET

The New Utility Truck

. . . . the Lowest Priced Truck with 4 Speeds Forward . . . 4-Wheel Brakes!

Now Chevrolet presents the New Utility Truck—a low-priced haulage unit embodying every feature of advanced engineering developed through years of experience in commercial car building, and proved by exhaustive testing on the General Motors proving ground!

A new four-speed transmission, with an extra low gear, gives tremendous pulling power for heavy roads, deep sand and steep hills—and reduces to the very minimum the starting strain on motor, clutch and rear axle! Powerful, non-locking 4-wheel brakes, with a separate emergency brake, give a new measure of safety and utility. And a new ball-bearing worm-and-gear steering mechanism provides handling ease never before experienced in a low-priced transportation unit.

Visit your Chevrolet dealer and get a demonstration of this remarkable new truck. There is a body type designed especially to meet the requirements of your business.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN
Division of General Motors Corporation

The New Utility Truck
$520
(*Chassis Only*)
f. o. b. Flint, Michigan

WORLD'S LARGEST BUILDER OF TRUCKS

Yes—we should like you to mention THE AMERICAN CITY.

NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings

Hoists for Sewer Tunneling Jobs

Three single - drum, electric - powered hoists manufactured by the Novo Engine Co., 204 Porter Street, Lansing, Mich., are being used by Louwers and Somerville, of Detroit, on sewer tunneling jobs in that city. These "NH" hoists were arranged to handle both spoil and sewer lining materials.

A head frame was erected over the excavation, and at one side, half-way up, a bin was built. This bin held the excavated material, and from it the trucks were loaded by gravity. Above the hopper was a track and small industrial car,

THE NOVO NH HOIST FOR SEWER TUNNELING WORK

serving the purpose of a platform for the spoil bucket to drop on, an action which emptied the spoil bucket. The car was rolled aside while the spoil bucket was being hoisted to the top of the head frame, the hoist operator controlling both the spoil bucket and the car.

At one side of the excavation an electric-powered mortar mixer was placed, which dumped into a bucket lifted and lowered by the Novo "NH" hoist. Brick was piled on the other side of the excavation; the brick was also lowered by the hoist down the shaft. Approximately 200 brick constiuted a load, which, as in the case of the spoil, weighed 1,500 pounds, including the bucket.

N. E. Water Works Convention

The 47th Annual Convention of the New England Water Works Association will be held at Montreal, Que., September 18-21, 1928, with headquarters at the Hotel Windsor.

THE AUSTIN "CONTRACTOR'S SPECIAL" GRADER WITH CATERPILLAR SIXTY TRACTOR AND NEW AUSTIN POWER TAKE-OFF

A New Power Take-Off

Ruggedness, high quality of material and workmanship, and efficiency, are features of the new power take-off of The Austin-Western Road Machinery Co., 400 North Michigan Avenue, Chicago, Ill. This is a device by means of which the carrier of the Austin "Contractor's Special" New Era elevating grader is driven directly from the engine of the Caterpillar Sixty tractor, not being dependent for its power on the traction of the rear wheel of the grader.

According to the manufacturer, the new device saves labor, time and money. It has the following advantages: a faster-moving belt, giving greater capacity; a constant, uniform belt speed, irrespective of the movement of the grader as a whole, insuring no delay in delivering dirt; a positive drive irrespective of the load put upon the carrier by the plow, no clogging, and a uniform delivery of dirt; the opportunity to work the plow to its full capacity, greatly increasing the capacity of the grader; and the ability to start work much sooner after a rain than when the carrier gets its power from the rear wheel. A big saving in gasoline is afforded, and wear and tear on the tractor, by reason of the decreased load it has to pull, is reduced to a minimum. A saving in repairs is also afforded by reason of the elimination of wear on the drive wheel, short shaft, gears and other driving mchanism between the rear wheel and the carrier.

M. E. Kennedy Elected President

The Kennedy Valve Manufacturing Co., Elmira, N. Y., has announced that Matthew E. Kennedy, formerly Treasurer and General Manager, has been elected President and Treasurer, to succeed his father, the late Daniel Kennedy, founder of the company. J. Carroll Kennedy, Works Manager, has been elected Vice-President and Secretary. He will continue in charge of production. Clarence H. Kennedy, General Sales Manager, has been made a Vice-President.

The Tenth Texas Water Works Short School Proceedings

The Proceedings of the Tenth Texas Water Works Short School have been published and distributed by the Texas Section of the Southwest Water Works Association. The volume is divided into two sections, one devoted to Water and the other to Sewage, covering 294 pages. The papers were prepared by some of the foremost men in their respective fields in the United States and foreign countries. Copies of the Proceedings may be obtained for $1.00 from E. G. Eggert, Treasurer, Austin, Texas.

More Power in a New Tractor

Improved construction, added operating convenience, and greater power, are features of the Model "50" tractor of the Monarch Tractors Corporation, Springfield, Ill., subsidiary of the Allis-Chalmers Manufacturing Co., of Milwaukee, Wis. This is not a new model; it retains all the power and operating abilities of the 6-ton, with important engineering improvements and with increased durability.

It produces 50 horsepower at the drawbar with 40 horsepower rated load. The weight is approximately 13,500 pounds, being considerably in excess of the weight of the former 6-ton.

Other new features are: tracks of pin-drive type, all manganese steel, with heavy rollers engaging with the track drive sprockets; a wider seat to accommodate two; a Purolator which effectively filters the oil supply in the motor; wider radiator and hood; drop forged steel truck wheels with shafts drilled for pressure lubrication, and Pomona air cleaner.

For road maintenance, contracting, snow removal, hauling and industrial work, the Monarch "50" occupies a field midway between the light- and heavy-duty classes of tractor power.

There are three forward speeds and one reverse. The 4-cylinder, valve-in-head, heavy-duty type of motor has been especially built for this tractor. It has a 5⅛-inch bore, and a 6½-inch stroke, and develops 60 brake horsepower at 1,000 r.p.m.

THE MONARCH "50" TRACTOR

THE OPEN MARKET

BUILDING fine vehicles is not a matter of chance. Behind the leading manufacturers of any line, you will always find years of study and building, for knowledge of conditions and needs can only come with great experience.

For sixty years the name of Henney has been associated with the best in vehicular construction. Wherever and whenever manufacturers have shown enough faith in their products to exhibit them in competition at buyer's conventions and expositions, the Henney line has been in evidence.

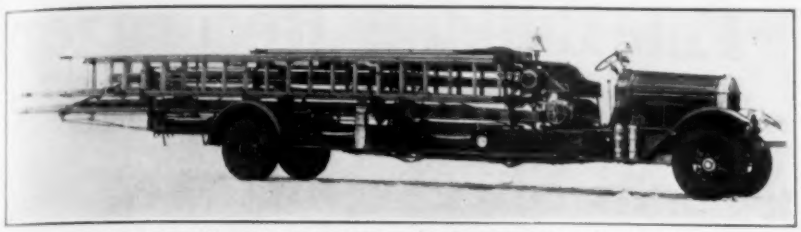
Today, Henney vehicles are displayed at every important meeting of purchasers of its products. For sixty years, Henney workmanship has stood the test of competition in the open market without fear. Where men can compare values, Henney vehicles will always attract the buyer who wants all of the facts.

SINCE 1868

HENNEY MOTOR COMPANY

Freeport [Export Representative H. M. ROBINS COMPANY, Detroit] Illinois

Yes—we should like you to mention THE AMERICAN CITY.



THE TYPE-94 AMERICAN-LA FRANCE APPARATUS SOLD TO BAKER, ORE.

Baker, Ore., Buys New Fire-Fighting Apparatus

The city of Baker, Ore., has purchased recently through the Howard-Cooper Corporation, of Portland, Ore., representative of the American-LaFrance Co., of Elmira, N. Y., a hook and ladder outfit at a cost of $7,800. This outfit, which will be delivered in Baker in about 60 days, will be the most complete and the largest ever purchased by that city.

The equipment will include 235 feet of ladders, 200 feet of chemical hose, a 40-gallon chemical tank, a bed capable of holding 750 feet of 2½-inch hose, space for a life-saving net, crowbars, tin roof cutters and miscellaneous fire-fighting apparatus.

Upson Joins Chain Belt

The Chain Belt Co., Milwaukee, Wis., has announced the addition to its sales organization of Charles H. Upson, who for the past twenty-three years was District Manager for the Dodge Manufacturing Co. Mr. Upson will have his headquarters at 909 Traction Building, Cincinnati, Ohio.

New Layne & Bowler Official

W. H. Reeves, Vice-President and General Manager of the Layne-Southeastern Co., St. Petersburg, Fla., is now associated with Layne & Bowler, Inc., in the Chicago, Ill., office. R. R. Schweitzer has succeeded Mr. Reeves, with his principal office at 212 S. A. L. Building, Norfolk, Va. The Florida office is under the charge of Y. C. Carmichael, at 4711 French Street, Jacksonville, and the St. Petersburg office was discontinued as of June 15.

Weed Killer Equipment on a One-Ton Truck

A newly designed piece of foolproof apparatus which is mounted on a standard one-ton truck has been announced by the Chipman Chemical Engineering Co., Inc., Bound Brook, N. J., for the application of Atlas non-poisonous weed killer to borough and town streets and gutters.

Municipal chemical weed control has always been a problem involving cumbersome water. Large sprinkling wagons were necessarily required in the past. This has led to the development of the atomizing apparatus by the Chipman organization.

A portable centrifugal pump is attached to the crankshaft of the motor and permits the atomization of the chemicals under high pressure. One man is all that is necessary to operate the equipment, and a densely vegetated strip eight feet in width by one mile in length can be properly and thoroughly treated in eight minutes.

This new method of applying weed killer is claimed to be the quickest, best and cheapest means of removing weeds and all obnoxious vegetation from streets and roads without disturbing the soil surface.

THE NEW MODEL-20 SWEEPER FOR USE WITH McCORMICK-DEERING TRACTORS

A New Street Sweeper for Tractor Mounting

A detachable unit sweeper for use with the McCormick-Deering industrial tractor has been announced by the Municipal Supply Co., South Bend, Ind. This Model 20 sweeper consists of a frame which is mounted on the tractor and the broom sweeper itself.

The frame on the tractor which carries the power mechanism is attached to the tractor at five points—a clip on the rear axle at each side, a hook over the tractor engine base on each side at the front end, and a fastening-on lug that extends in front of the bolster above the front axle pivot.

The boom is secured to the frame by three bolts—a flexible coupling, a lifting rod and a support rod bolt. No changes whatsoever are necessary on the tractor, as the driving sprocket furnished by the manufacturer for the power take-off is fitted to take the splines on the power take-off shaft. The broom is geared to run at 110 revolutions per minute when the take-off shaft runs 543 revolutions per minute. This gives brush speed of approximately 70 feet per minute, and the broom sweeps a swath 5 feet wide.

A suitable bumper can be attached to the frame on the tractor for pushing trucks around at a central municipal garage, as the frame delivers all the strain to the driving axle, thus relieving the frame of the tractor and the front axle.

This sweeper is designed as a sturdy unit for snow-removal as well as street-sweeping activities.

Dixon Moves Chicago Office

The Joseph Dixon Crucible Co., Jersey City, N. J., has announced that on June 1 it moved its Chicago sales office to 2003 Builders' Building, Wacker Drive and LaSalle Street.

Heil Company Consolidates

Clement C. Smith of The Heil Co., Milwaukee, Wis., has announced the consolidation of that company with the Hydro Hoist Co., a subsidiary. Mr. Smith is now Chairman of the Board of Directors of the consolidated company. J. P. Heil, formerly Vice-President and Treasurer of The Heil Co., has been elected President and Treasurer; Herman W. Falk, Vice-President, and W. M. Chester, Secretary.

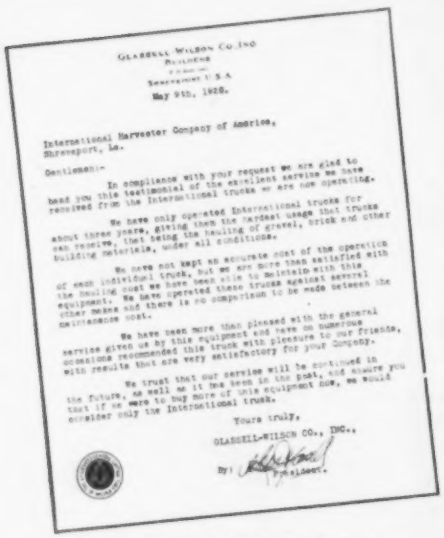
The Heil Co., in addition to a group of modern factory buildings on 18 acres of ground at Milwaukee, has branch factories in Boston, New York, Philadelphia, Cleveland, Detroit and Chicago. About a year ago, the company completed a quarter-million-dollar building program which now gives the factory a total floor space of 214,000 square feet.

THE NEW CHIPMAN WEED KILLER ATOMIZER TRUCK FOR MUNICIPAL SERVICE

Fine Building Record for INTERNATIONAL TRUCKS at Shreveport, La.

THE JAIL of Caddo Parish, La., is on the top floor of the Court House. Ashton Glassell, of Glassell-Wilson Co., builders of the Court House, is also president of the Shreveport chapter, Associated General Contractors of America.

Part of the Glassell-Wilson Co. fleet of International 2-ton Speed Dump jobs.



Glassell Wilson Co. Inc
Builders
Shreveport, La. U.S.A.
May 9th, 1928.

International Harvester Company of America,
Shreveport, La.

Gentlemen:-

In compliance with your request we are glad to hand you this testimonial of the excellent service we have received from the International trucks we are now operating.

We have only operated International trucks for about three years, giving them the hardest usage that trucks can receive, that being the hauling of gravel, brick and other building materials, under all conditions.

We have not kept an accurate cost of the operation of each individual truck, but we are more than satisfied with the hauling cost we have been able to maintain with this equipment. We have operated these trucks against several other makes and there is no comparison to be made between the maintenance cost.

We have been more than pleased with the general service given us by this equipment and have on numerous occasions recommended this truck with pleasure to our friends, with results that are very satisfactory for your Company.

We trust that our service will be continued in the future, as well as it has been in the past, and assure you that if we were to buy more of this equipment now, we would consider only the International truck.

Yours truly,
GLASSELL-WILSON CO., INC.,
By: President.

Mr. Glassell's letter about his fleet

THE beautiful $1,500,000 Court House, of which Caddo Parish is proud, is only one item in the impressive showing made by International Harvester Trucks in Shreveport and in Louisiana generally.

The Glassell-Wilson Co. have used their fleet of Internationals in many enterprises in the half-million-dollar class and up, such as the 12-story Heidelberg Hotel at Baton Rouge, the plant of the Southwest Gas & Electric Co., the Y. M. C. A., and the stately First Presbyterian Church of Shreveport. The trucks, working on a hard day-and-night program, helped them complete the Court House job 150 days ahead of schedule, netting a fine piece of bonus money. The full record of these trucks is the kind of story of performance and economy any contractor likes to report.

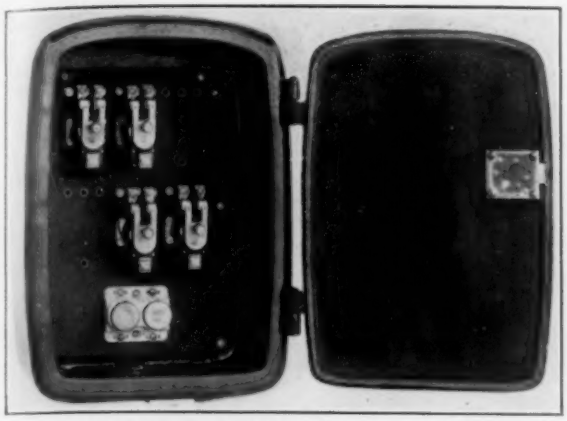
Mr. Glassell is now building two Louisiana hotels, one at Monroe and one at Lafayette. Mr. K. C. Wilson, his partner, now has an independent business *and a new fleet of International Harvester Trucks.* He will build the new dormitory of Dodd's College and the Market Street viaduct, probably the largest project now under way in Shreveport.

Shreveport is strongly an International town. Every conceivable type of hauling has Internationals in service—a total of several hundred. Besides, Internationals have for years been the prime favorite in oil field hauling out of Shreveport as well as in Texas and Oklahoma. Hauling pipes, boilers, tanks, etc., over roadless oil country is about as heavy a job as you can hand to trucks.

The full range of International Truck sizes runs from ¾-ton up to 5-ton. Service through 164 Company-owned branches in the United States and Canada. Write us for a folder on trucks for your special kind of hauling.

INTERNATIONAL HARVESTER COMPANY
606 S. Michigan Ave. OF AMERICA (Incorporated) Chicago, Illinois

S. N. Yarbrough did the excavating for the Caddo Parish Court House. This view shows 3 of his Heavy-Duty 2 and 3-ton Internationals. Mr. Yarbrough likes Internationals better for all-around performance and economy than various other makes he has owned. He says it's a joy to see them come loaded out of holes where other trucks stay.



GENERAL ELECTRIC CONTACTOR BOX FOR TRAFFIC CONTROL, SHOWING TWO JACK-MOUNTED CONTACTORS REMOVED

New Control Box for Traffic Lights

A new "cascade" control box, Form 57, for traffic light systems, has been announced by the General Electric Co., Schenectady, N. Y., designed to operate that company's three-color signals. The new box supersedes the old Form 37 cascade box and has the same outward appearance as the present Forms 52 and 53 automatic mechanism boxes.

In addition to the function of operating three-color signals, this box is so designed that jack-mounted relays for fire control, bell control or base floodlight control may be added. Any or all of these relays may be added at any time after installation without any change in the wiring of the box by jacking them into receptacles, provided the signals are connected for the additional feature.

The box consists of a cast iron, weatherproof container in which are normally mounted three jack-mounted relays or contactors. Although only three relays are provided as standard, three extra sets of receptacles are also provided for future additions as desired. The function of the box is to relieve the traffic timer of heavy loads in any type of central control system, and its use is recommended whenever a timer is to operate more than two intersections. It may be used as a cascade box or as a branch line feeder. In a cascaded central control system the control cable runs from the control mechanism box to the first relay box. A power cable runs from the first relay box to the first four or five intersections or into the next relay box, and so on indefinitely.

Effective Park and Shade Tree Sprayers

As the necessity for park tree spraying has become more and more evident, the demand for high-pressure, big-capacity sprayers has gradually increased. The Friend Manufacturing Co., Gasport, N. Y., is making park sprayers in several sizes. Friend deep-oiled park sprayers are made in three sizes, and the smaller capacity outfits, without the oil bath, are made in four sizes.

The big quadruplex oil bath outfits are in general use for tall shade-tree spraying and are the most efficient Friend outfits, as there is always an abundance of power. With a Friend quadruplex oil - bath sprayer and long park gun, it is possible to reach the tops of the tallest shade trees and do a thorough job of spraying.

The smaller outfits are effective for park spraying where the power and capacity is sufficient for the height of trees and shrubbery. These sprayers are made in cut-under models, and another feature of interest to park superintendents is the powerful air draft which is created to carry the large volume of minute particles of spray solution in a swirling motion through the entire tree. Thus, each leaf, twig, branch and bud is completely involved in the whirling, mist-like spray, and the air draft not only serves to carry the fine particles a great distance, but also to cause the leaves to flutter and the twigs and small branches to move as in a blast of air, which allows the spray to have a complete contact on all sides. This system has been effectively used by many municipal and state park departments.

THE FRIEND DEEP-OIL BATH PARK TREE SPRAYER

New Resident Illuminating Engineer for Northern California

Curtis Lighting, Inc., has announced the appointment of Roy D. Myers, formerly of the Northern States Power Co., St. Paul, Minn., as Resident Engineer for Northern California, with offices at San Francisco. In his recent work at St. Paul, Mr. Myers has been responsible for the design and completion of many outstanding lighting installations, and has had a leading part in the successful conduct of lighting promotional work.

THE NEW CATERPILLAR TWENTY, WITH CAB AND LIGHTS AS SPECIAL EQUIPMENT FOR WINTER WORK

This permits locking up for the night and week-end periods, completely protecting the machine

Rebman Made District Sales Manager

The Sweet's Steel Co., Williamsport, Pa., has announced the appointment of Samuel C. Rebman as District Sales Manager, with offices at 508-510 Miners Bank Building, Wilkes-Barre, Pa.

New Secretary for Paving Brick Association

The National Paving Brick Manufacturers Association, 842 South Michigan Avenue, Chicago, Ill., has announced the appointment of Quincy A. Campbell as Acting Secretary and Assistant to the Managing Director of the Association. Mr. Campbell has been with the Ohio Department of Highways since 1921 and in 1927 became Assistant Chief Engineer of Maintenance, with headquarters at the Columbus office, a position which he resigned to enter his present employment.

See pages 25 and 27 for up-to-the-minute lists of manufacturers' literature.

Firestone
Gum-Dipped
Heavy Duty Pneumatics

The Tire Supreme for Fire Fighting

Hold all World Records for Safety, Durability *and* Mileage

For Commercial Cars, Trucks *and* Buses

1 Ten plies of Gum-Dipped Cord.
2 Extra rubber between all plies.
3 Twin bead for greater durability and better tire seating.
4 Two Gum-Dipped cord breakers.
5 Heat resisting cushion stock of intermediate stiffness, interlocking cord breaker, two outer plies, tread and carcass.
6 Extra heavy, tough tread, uniformly distributed and tapered down to form sidewalls.
7 Heavy inside layer of tough heat resisting rubber.

Mr. V. E. Cargion, Chief at Auburn, Maine, writes "Two sets of Firestone Gum-Dipped Tires on our pumpers, have been in constant use for four years and we have had absolutely no tire trouble." Mr. Elmer L. Rhoades, Chief at Kearney, Nebraska, reports, "On the apparatus which we operate there are at present two Firestone Tires 8 years old, four 3 years old and two 6 years old."

A. J. Mortemer of McBrides, Mich., has to date received 51,000 miles from a set of Firestone Gum-Dipped Tires on his truck. For seventeen months these tires have been every day on a milk route, carrying two and three ton loads.

"Cannon Ball" Baker, in 1927, drove a 2-ton GMC truck, fully loaded, from Atlantic to the Pacific—3,693 miles in 137 hours and 36 minutes. This fastest and longest truck run on record was made on Firestone Gum-Dipped Heavy Duty Pneumatics.

The Black Diamond Bus Line, Brownsville, Texas, report a set of Firestone Gum-Dipped Tires on a 20-passenger bus, ran over 83,000 miles. The Parmelee Company of Chicago since 1924 have obtained the remarkable average of better than 35,000 miles from Firestone Gum-Dipped Tires on all vehicles in their passenger and baggage transfer fleets.

These records talk straight BUSINESS to the man who carries the responsibility for fire protection in his community.

PERFORMANCE—that's the thing!—not mere claims or promises. Tire buyers are entitled to the cold, hard facts, and Firestone Tires are delivering them in safety and mileage never before approached in the history of tire building.

Whatever your operating conditions, Firestone has built the tire to give the most economical and satisfactory service. The FACTS are before every tire buyer—the element of gamble has been eliminated. When you buy Firestone Tires, you KNOW that you are buying

MOST MILES PER DOLLAR

AMERICANS SHOULD PRODUCE THEIR OWN RUBBER... Harvey S. Firestone

DUMPING THE HOUSEHOLDER'S REFUSE CAN INTO THE RECEIVING TROUGH OF THE COLECTO TRUCK

An Improved Garbage and Ash Collection Truck

In collecting garbage, ashes and refuse there is no longer any excuse for scattering remnants and diffusing odors throughout the streets of the city. Unsanitary methods of garbage collection endanger the health and welfare of the whole community, spreading disease, and sprinkling dust and ashes in every home. Since cleanliness is the basic requirement of sanitation, B. Nicoll & Co., general sales agents for the Collection Equipment Corporation, 292 Madison Avenue, New York, have developed the Colecto truck, which can be loaded and dumped by one man and which prevents any nuisance, because of its special type of construction.

The truck is built either with a 10-cubic-yard or a 15-cubic-yard body made of No. 10 gage steel. Refuse is loaded into a 10-foot bucket which is 20 inches high in front and 27 inches high in the rear and 22 inches wide. The bucket is raised by two cables at either end, equipped with equalizers, and runs on two tracks. It is raised by simply throwing a lever close by the forward end of the bucket. The bucket is then raised quickly to dumping position at the top of the truck, where it pushes back a steel apron and permits the refuse to fall into the body of the truck. When the bucket again drops to loading position, the apron swings forward and tightly closes the truck, preventing the escape of odors and dust.

The driving mechanism for dumping the bucket consists of a power take-off located usually on the left side of the truck transmission. The lever in the cab makes it convenient for the operator to push it in or out of gear. By means of a chain and sprocket this operates a horizontal shaft which extends back to a universal joint just ahead of a small gear-box located near the body end. This arrangement permits the bucket to make a continuous series of round trips up and down without recourse to reverse gears and reverse mechanisms. To stop the bucket at any point in its travels it is only necessary to throw the lever mentioned above.

For dumping, a hydraulic or mechanical underbody hoist is used with the power take-off on the right-hand side of the chassis, which elevates the body to a dumping angle of 45 degrees.

SUBURBAN ROAD CONSTRUCTION IN MILWAUKEE, WIS., WITH A MODEL-DH TRACKSON MC CORMICK-DEERING TRACTOR AND A ROME 10-FOOT GRADER

THE NEW COLLECTO TRUCK DUMPING ITS LOAD, CONTROLLED ENTIRELY FROM THE DRIVER'S SEAT

Lewis Made Resident Manager of Cleveland Office

The United States Cast Iron Pipe & Foundry Co., Burlington, N. J., has announced the appointment of A. W. Lewis as acting resident manager in charge of the Cleveland works and Cleveland sales office of that company.

Houston and Albany Get New Stadiums

The Stadium Co., engineers, 201 Mercer Building, Syracuse, N. Y., which specializes in stadiums, athletic fields, and baseball parks, with a service of consultations, investigations, reports and designs, has recently completed the construction of two new stadiums, one at Albany, N. Y., and the other at Houston, Texas.

In the rough . . . or on the fairway

In the rough going of the municipal trash-dump or on the delicate green lawn of park or fairway, "Caterpillar" Tractors are equally at home.

. . . a hundred other places, too, the "Caterpillar" will contrive to fill the power needs of city management . . . *better, quicker, cheaper.*

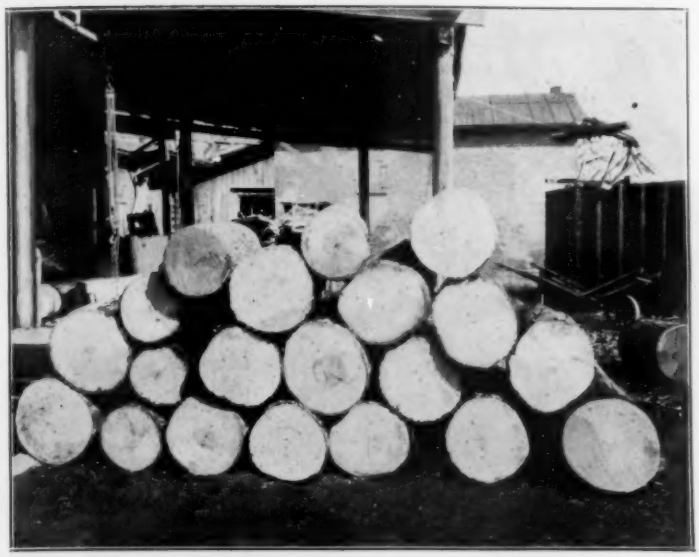
SIXTY	THIRTY	TWENTY	2-TON
$4600	$2650	$2175	$1675
F. O. B. SAN LEANDRO OR PEORIA			F.O.B. PEORIA

CATERPILLAR TRACTOR CO.

Executive Offices: San Leandro, California, U. S. A.
Sales Offices and Factories:
Peoria, Illinois San Leandro, California
Distributing Warehouse: Albany, N. Y.
New York Office: 50 Church Street
Successor to
BEST (C. L. Best Tractor Co.) (The Holt Manufacturing Company) HOLT

CATERPILLAR
REG U S PAT OFF.

Yes—we should like you to mention THE AMERICAN CITY.



HICKORY LOGS CUT TO ELIMINATE KNOTS—THE FIRST STEP IN MAKING HUNTSVILLE HICKORY BROOM FIBER

Making Hickory Fiber for Street Sweeper Brooms

The care in selection and manufacture of Huntsville hickory for motor pick-up sweepers, is interesting. The Huntsville Fiber and Veneer Works, Huntsville, Ala., secures its raw material from the Cumberland Mountains along the Tennessee River. American shellbark hickory is selected from the stumpage available close to the mill. The logs are received at the mill and cut into blocks of the proper length. All the rougher parts of the logs are eliminated and all blocks containing knotty sections are rejected.

The best wood goes to the boiling vat, where a special process renders it fit for the subsequent steps. The logs are then barked and placed in a rotary-cut veneering machine which turns out the long sheets of veneer cut to the uniform 1/25-inch thickness.

The veneer is inspected and any defective parts are torn out, where the grain may be wrong or where knots appear that were missed in the first inspection of the blocks. The veneer is then ready for the chopper table, where piles 3½ to 5 inches deep are cut to the proper width under a vertical knife.

The material is now in the form of fiber, each piece 26 inches long, ¼-inch wide, and 1/25-inch thick. The material then goes to the shake room and drying room. In the shake room the final and most rigorous inspection takes place. The fiber is received there on racks direct from the chopper table. Specially trained employees take up small bundles in their hands, grasping each bundle firmly at one end and shaking it vigorously. Then, grasping the other end, they repeat the process. Weak splints or those containing the slightest flaws which may have escaped the previous inspections break quickly under this treatment and are discarded. Each bundle is then beaten vigorously against the employee's knee or against the floor. Again the bundles are opened and any short or broken pieces removed, until only perfect, full-length fibers remains to pass through the final process.

The final drying process takes place in a specially prepared shed. Only natural air is used and no water is allowed to reach the wood during this process. Thus, the strength and resiliency of the natural hickory are preserved. Artificial drying would endanger the steel-like springiness which is so important a factor in sweeping heavy refuse cleanly onto the elevator of a motor pick-up sweeper.

This natural drying is the final process of manufacture. When it is completed, the fiber is packed in 500-pound bales, stenciled and made ready for shipment.

The element which contributes most to the expense of manufacturing is not the raw material or labor, as is generally the case in such a business, but the tremendous waste involved by the repeated inspections and constant rejection of pieces containing minor imperfections. Even from selected stumpage, 1,000 feet of logs, weighing approximately 15,000 pounds, under the Huntsville process will produce only 3,000 pounds of acceptable fiber.

Glass Covers for Sludge Drying Beds

Glass covers were erected over sewage sludge drying beds at least fifteen years ago. Many of these early attempts ended in only partial success. This was due to the fact that the engineer attempted to design the glass cover himself rather than to consult with firms experienced in this line of work. The result was that the roofs often were too flat, that the steel work was improperly designed, and not sufficient allowance was made for expansion and contraction, also that the glass was improperly set. The result was an extremely high upkeep, due principally to glass breakage.

From the construction standpoint, there are four major requirements to be met in sludge-bed glass-overs. First, they should be as light as possible, so that no needless shade will reduce the activity of the sun and light. Second, it should be made of material that will best withstand the destructiveness of alternate excessive moisture and stewing heat. Third, the ground base should be as free from columns as possible so as not to interfere with the passage of sludge cars. Fourth, the construction should have sufficient stress and strength to withstand the strains of unusual winds and snow loads.

Thousands of structures of this type have been built by the Lord & Burnham Co., Graybar Building, New York. Many of these structures cover an acre of space and vary from 50 to 80 feet in width and up to 1,000 feet in length.

Probably the first glass-over for sludge beds erected by an experienced builder of glass houses was the one at Boonton, N. J., designed by Clyde Potts, consulting

THE "SHAKE" ROOM—THE FINAL TEST FOR GOOD FIBER FOR MOTOR-DRIVEN STREET CLEANER BROOMS

Building and Maintaining **Better Roads** *At Lower Cost*

TRACKSON equipped McCormick-Deering tractors build and maintain better roads at lower cost by delivering to their owners a greater measure of performance, quality, value and long life.

They provide ample power, sure-footed traction and an adaptability that is proved by continuous, unstinted, willing service . . . . pulling stumps, clearing fields, hauling, plowing, scarifying, excavating, grading, etc., and by keeping roads and streets open throughout the winter.

The combined advantages found in Trackson McCormick-Deerings, together with their moderate initial cost and low operating costs, make them the most practical "all purpose" crawler tractors.

Write for folder DH today, it will give you complete information on this remarkable Master Crawler Tractor!

Trackson Company
FULL CRAWLERS AND TRACTOR EQUIPMENT
518 CLINTON ST. MILWAUKEE, WIS.

Yes—we should like you to mention THE AMERICAN CITY.

GLASS-COVERED SLUDGE BEDS IN PORT WASHINGTON, L. I.
Photograph taken from sidewalk of one of the principal streets of the town

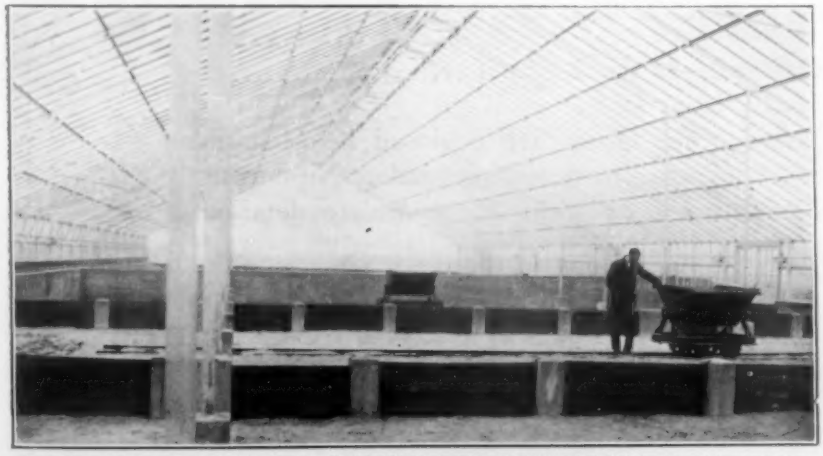
engineer, New York. This was a single span 80 feet in width by 150 feet in length, and was erected about five years ago. Numerous other engineers who had contemplated the use of these covers as a means of speeding up the drying of sludge and protecting it from rain which would retard the drying process soon followed Mr. Potts' example, with the result that in the period between 1925 and the present time there have been a considerable number of these covers built by the Lord & Burnham Co. throughout the United States. The largest project in the United States is one now being erected for Dayton, Ohio, on which there are eleven glass covers, each 61 feet wide by 164 feet long, covering a total area close to 10,000 square feet.

There is really only one advantage in the use of glass covers and that is that through their use one can secure more efficient drying of sludge. Not only will sludge dry faster under a glass cover because of the higher temperature maintained under the glass, but also because of the fact that the glass cover protects it from rain and from freezing. With an ordinary open sludge bed in the vicinity of New York City, one could reasonably expect to obtain about six dryings a year, while with the same bed glass-covered, twenty dryings per year could easily be obtained.

If property values are high or space is limited, considerable saving can often be made in a plant by the use of glass-covered beds. As a rule, a glass-covered bed will cost less than an open bed three times the size. Of course, this will vary somewhat, depending on the drainage and the cost of sand and gravel on the particular job.

With covered beds the efficiency of the whole plant is increased tremendously because the sludge may be drawn from the tanks at the option of the operator, regardless of weather conditions. In a plant having open beds the sludge is seldom, if ever, drawn during the winter months in the northern part of the United States, with the result that by the time good drying weather arrives in the spring, the tanks are overloaded and operators are constantly receiving complaints because of odors escaping from the plant. At about the time in the spring when sludge is being drawn—and that is the latter part of April and the first part of May—there is usually considerable rain, and drying is frequently very slow and unsatisfactory. All of this can be eliminated by the use of glass-covered beds. Covered beds are a decided advantage where an existing plant must be enlarged and additional ground is not available, for if the existing bed is glassed over, its efficiency will be increased approximately three times. This will mean that it will be possible to enlarge the rest of the plant three times without enlarging the actual area of the open sludge drying bed, provided it is covered with glass at that time.

A HARLEY-DAVIDSON PACKAGE TRUCK PURCHASED BY HAMILTON COUNTY, OHIO, FOR TRANSPORTING DOGS TO THE POUND



GLASS COVER OVER SLUDGE DRYING BEDS OF THE NORTHERN SEWAGE DISPOSAL PLANT IN BERGEN COUNTY, N. J.
Single roof measures 65 x 125 feet

There is no doubt that glass-enclosed beds reduce the odor from the sewage disposal plant in so far as the sludge drying beds are concerned. If these beds are screened, it will reduce to a considerable extent the number of flies and other insects about the plant.

Memphis Office for Anderson Engine & Foundry Co.—Diesel Producer

The Anderson Engine & Foundry Co., Anderson, Ind., has announced the opening of a new office at 1829 Exchange Building, Memphis, Tenn., where a complete sales and service branch will be maintained. This office will give a very complete coverage of the South in connection with the company's sales and service branches in New Orleans and Welsh, La., Dallas, Texas, and Tampa, Fla.

Good Roads MACHINERY

THE "GOOD ROADS" MOTOR GRADER

"Equipped with "Good Roads" V Snow Plow, ahead of front wheels—scarifer for ice breaking—blade for side removal —Its in service winter and summer."

Illustrating "Good Roads" Motor Grader, with scarifier and powered with McCormick-Deering 10-20 Tractor—Rubber-tired wheels.

——"GOOD ROADS" MOTOR GRADERS——

are powered with

CATERPILLAR-2 Ton—CLETRAC-Model 20-K

McCORMICK-DEERING

(With Wheels or Bates Crawlers)

Steel Cab with Curtains—10 point Scarifier.
Blade lengths; 8, 10, 12, 14 or 16 ft.
Alemite pressure lubrication; Gears are enclosed in oil bath. Ball thrust bearings insure ease in operating blade. Numerous other features. Phone, wire, or write for complete detailed information to

THE GOOD ROADS MACHINERY CO., Inc.

KENNETT SQUARE, PA.

CHICAGO NEW YORK PHILADELPHIA
PITTSBURGH WATERTOWN, MASS.

GRADATION OF FLINT-LIKE SAND FROM NEW JERSEY DEPOSIT

A New Source of Filter Sands

The accompanying illustration shows the close grading of six sizes of filter sands or filter flints taken from a newly uncovered deposit in southern New Jersey. In smoothness and roundness, the grains resemble marbles of different diameters. In hardness, they will withstand abrasion and wear for a very long period of time because of the fact that each grain is a piece of pure flint.

The illustration also serves to give an idea of a cross-section of a filter bed in which these filter flints are used. Since all of the grains are of such uniformity in smoothness and roundness, each layer presents a series of larger openings between grains as the diameters of the grains increase. In other words, there are uniformly large openings in the bottom layer, and smaller as the top is approached. The liquid, being filtered, therefore percolates through the bed at an even rate of flow. These rounded filter flints are preferable to angular grained sand, the tendency of which is to pack tight and form a partial barrier to the flow of the water in a rapid sand filtration plant.

At the site of this deposit of flint sand, George F. Pettinos, 1206 Locust Street, Philadelphia, Pa., has erected a plant for washing and classifying the filter flints with great accuracy. The result is a grading for effective size and coefficient of uniformity which will meet the most exacting specifications for water filtration plant service. The plant itself is unique. In its method of exact sizing many different diameters of flints at the same time this plant sets an example of efficiency which is of interest to water filtration engineers. The plant has a capacity of 20 cars of filter flint sand per day, either wet or dry, washed, and screened to meet any specifications.

Sprayers for Park Department Service

The cost of adequate spraying equipment for any city, large or small, is insignificant when compared to the enormous losses that can result from neglect of shade trees, golf courses, landscapes and playgrounds. Every city should have a complete battery of sprayers—a suitable, appropriate outfit for each different class of work.

The Hardie Manufacturing Co., Hudson, Mich., has developed a complete line of large and small capacity high-pressure lighter-weight sprayers. The average weight of 200-gallon tank sprayers mounted on a truck is 2,000 pounds, but the Hardie 200-gallon sprayer with discharge capacity of 20 gallons per minute at 350 to 450 pounds pressure weighs only 180 pounds.

A Back-Water Sewer Valve for House Lines

An open-seat back-water sewer valve recommended for all house sewer lines, especially where there is danger of back water due to excessive rain, tide water or inadequate sewer carry off, has been developed by the Josam Manufacturing Co.,

THE JOSAM OPEN-SEAT BACK-WATER SEWER VALVE WITH CAST IRON BOLTED CLEAN-OUT

4900 Euclid Building, Cleveland, Ohio, and is known as its Series 1100. This valve is made with a cast iron bolted clean-out or a cast brass threaded clean-out. This valve is also helpful in the segregation of flood conditions in trunk-line sewers, confining the back water to sections between manholes.

The body is heavy cast iron japanned and has a bronze flap check or disc on bronze compound-acting double-fulcrum bearings. The disc is free to revolve, insuring tight closing against the brass seat. Under normal conditions the disc is open about ¾-inch, which permits continuous flow. The bearings also allow the disc to swing wide open to the full extent of the pipe area, so that there is no retarding of the flow. As the flow is reduced, the disc drops, and the instant the slightest back-flow takes place it will seat tightly and firmly.

In addition to these features, that part of the valve body directly beyond the disc is offset 1½ inches below the valve-seat, which precludes the possibility of fouling the valve.

A CATERPILLAR SIXTY OWNED BY THE CITY OF LONG BEACH, CALIF., PULLING A 24-DISC HARROW TEARING UP DIRT STREETS BEFORE PAVING
The tractor is pulling up a 16 per cent grade

Solvay Treated Road in Michigan

Solvay Treated Driveway in Massachusetts

LAYS DUST *Without Extra Cost*

Solvay Calcium Chloride lays dust perfectly. At the same time its beneficial action in binding road surfaces is so effective that in many instances it has saved the cost of its application in the cost of gravel and other surface replacement material. It produces a smooth, compact riding surface.

Its use on public and private driveways, in parks, cemeteries, country clubs and large estates has been widely recommended. On race tracks, state and municipal highways, tennis courts, ball parks, playgrounds and the like, it has been found invaluable for keeping surfaces in good shape and keeping down the dust.

Ordinary labor can spread Solvay Calcium Chloride quickly and easily; and without any expensive apparatus. Solvay is odorless and harmless, does not stain or track, nor injure automobile tires. It also prevents the growth of weeds.

There is no need to close roads while they are being treated with Solvay Calcium Chloride.

Write for Booklet 1056

SOLVAY
Calcium Chloride

Flake 77%—80%

Manufactured under U. S. Patents No. 1,527,121 and No. 1,592,971

SOLVAY SALES CORPORATION

Alkalies and Chemical Products Manufactured by The Solvay Process Company

40 Rector Street New York City